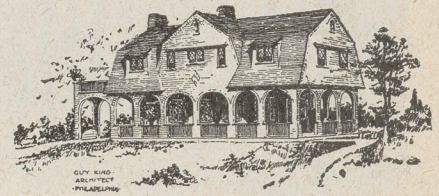


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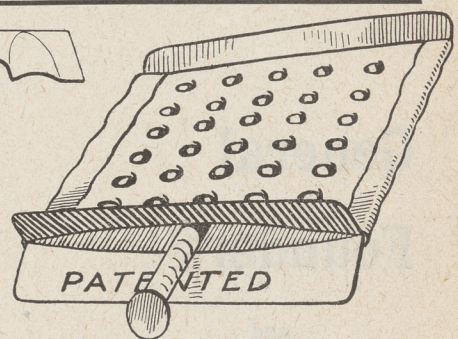
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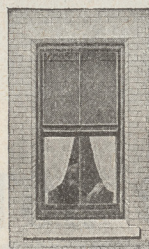
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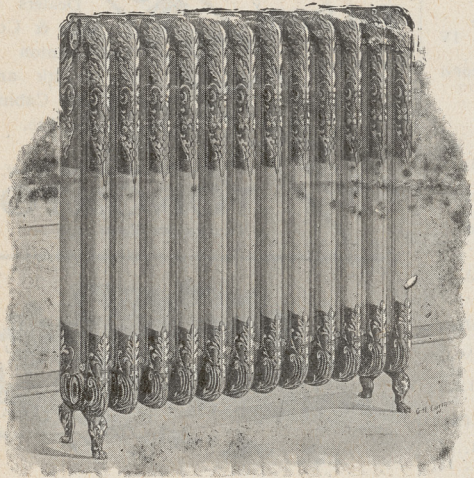
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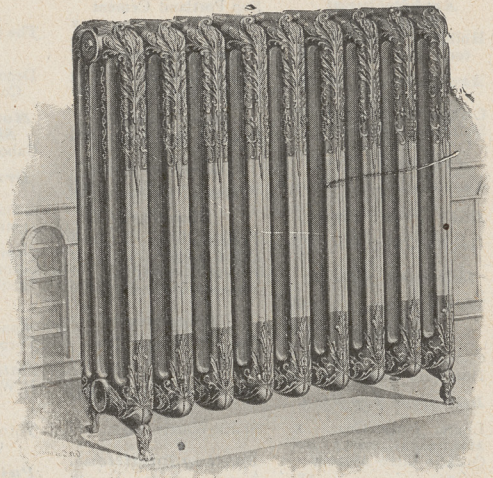
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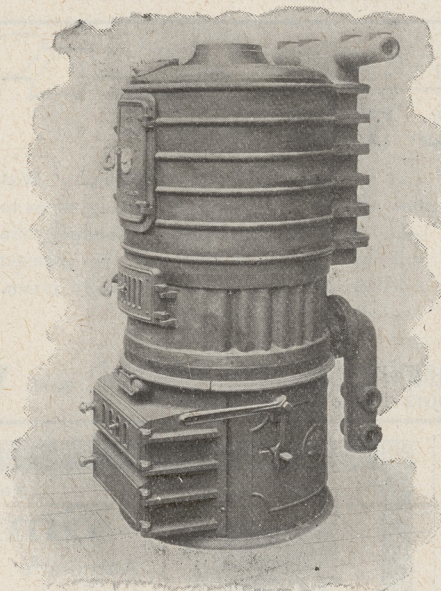
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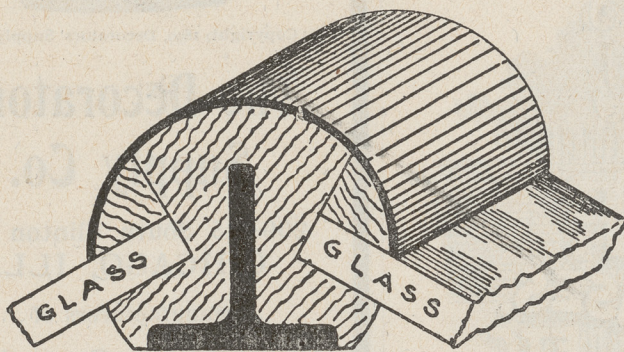
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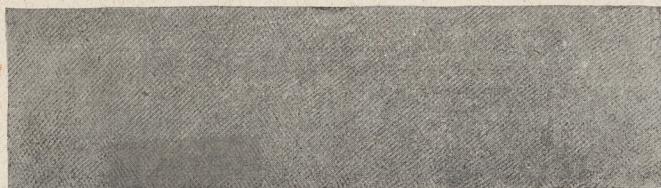
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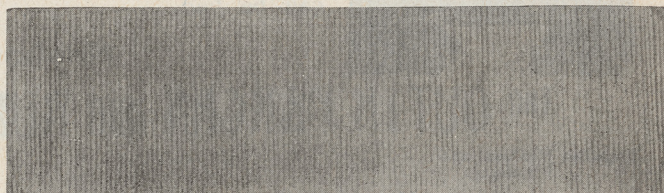
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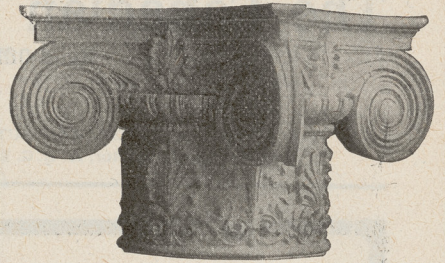
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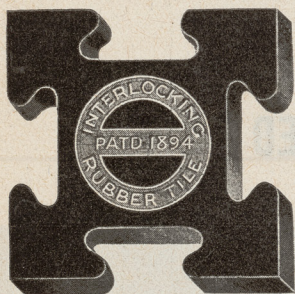
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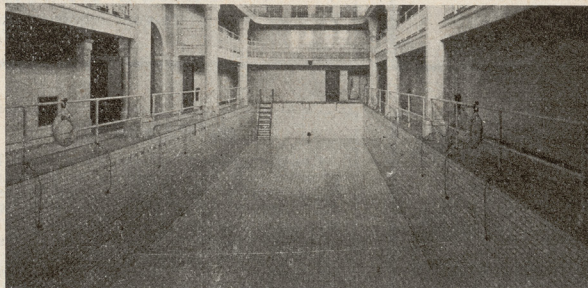
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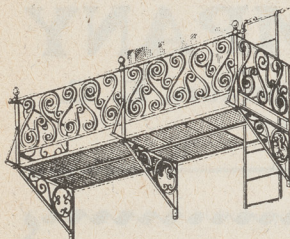
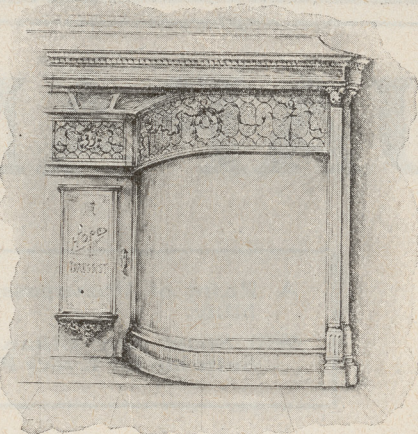
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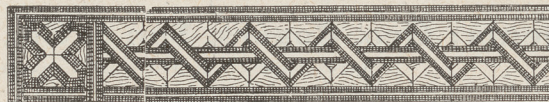
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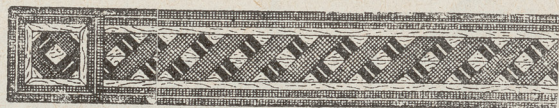
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Head Office for Canada, TORONTO. Kirkpatrick &amp; Kennard, Managers.

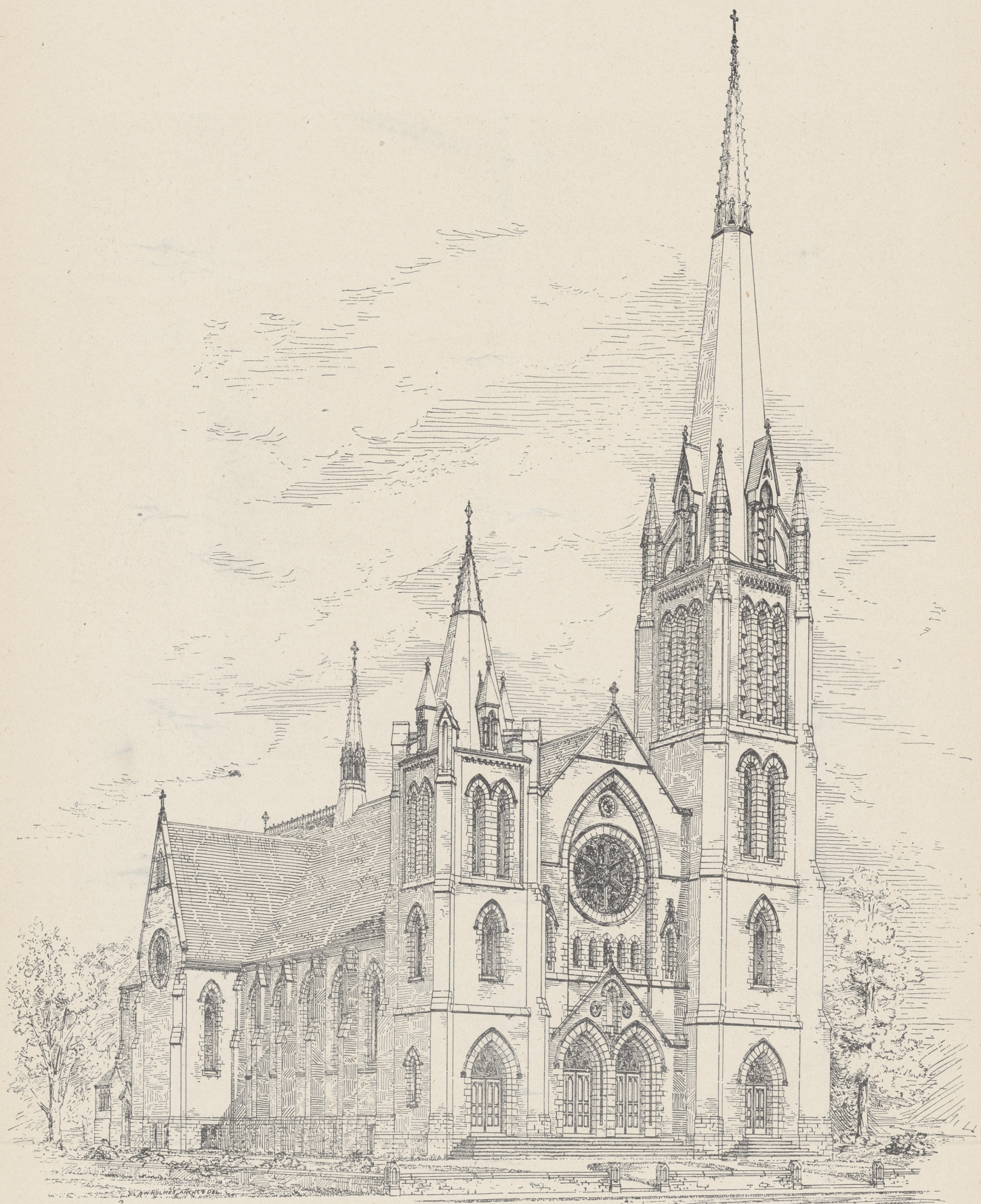
6 COLBORNE STREET.

Capital	-	\$1,650,000 00
Total Cash Resources, over	-	3,000,000 00
Deposited with Canadian Government	-	95,000 00

**ISSUES**—Fidelity, Official, Fraternal Order, Contract, Judicial, or Court Bonds

Makes a specialty of issuing contract bonds. A business proposition. Responsible contractors should use us and avoid putting themselves under personal obligations. Consult our local representative.



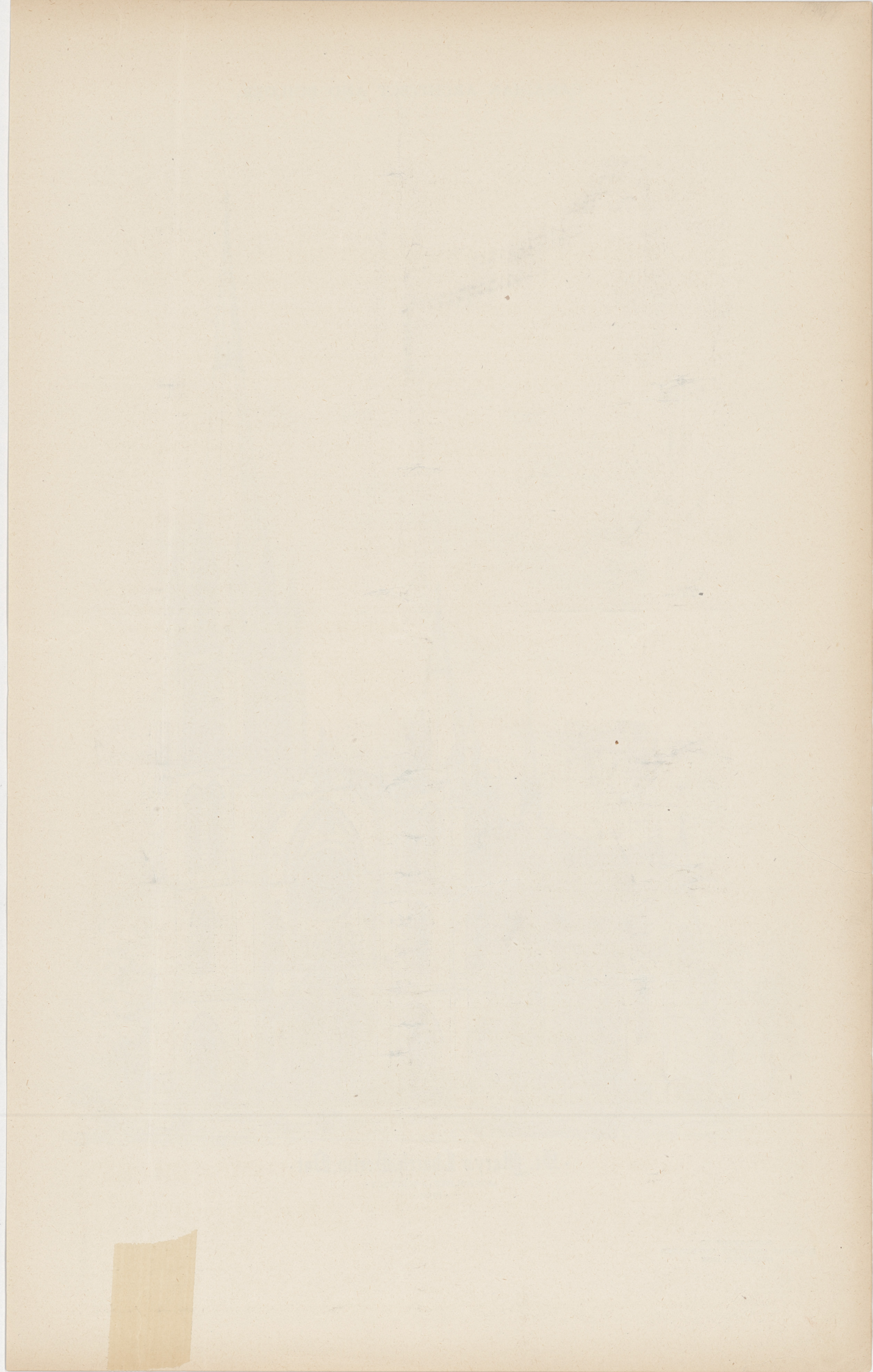


• St. Mary's Church, Berlin, Ont. •

• A.W. HOLMES, ARCHITECT •

• 1903 •









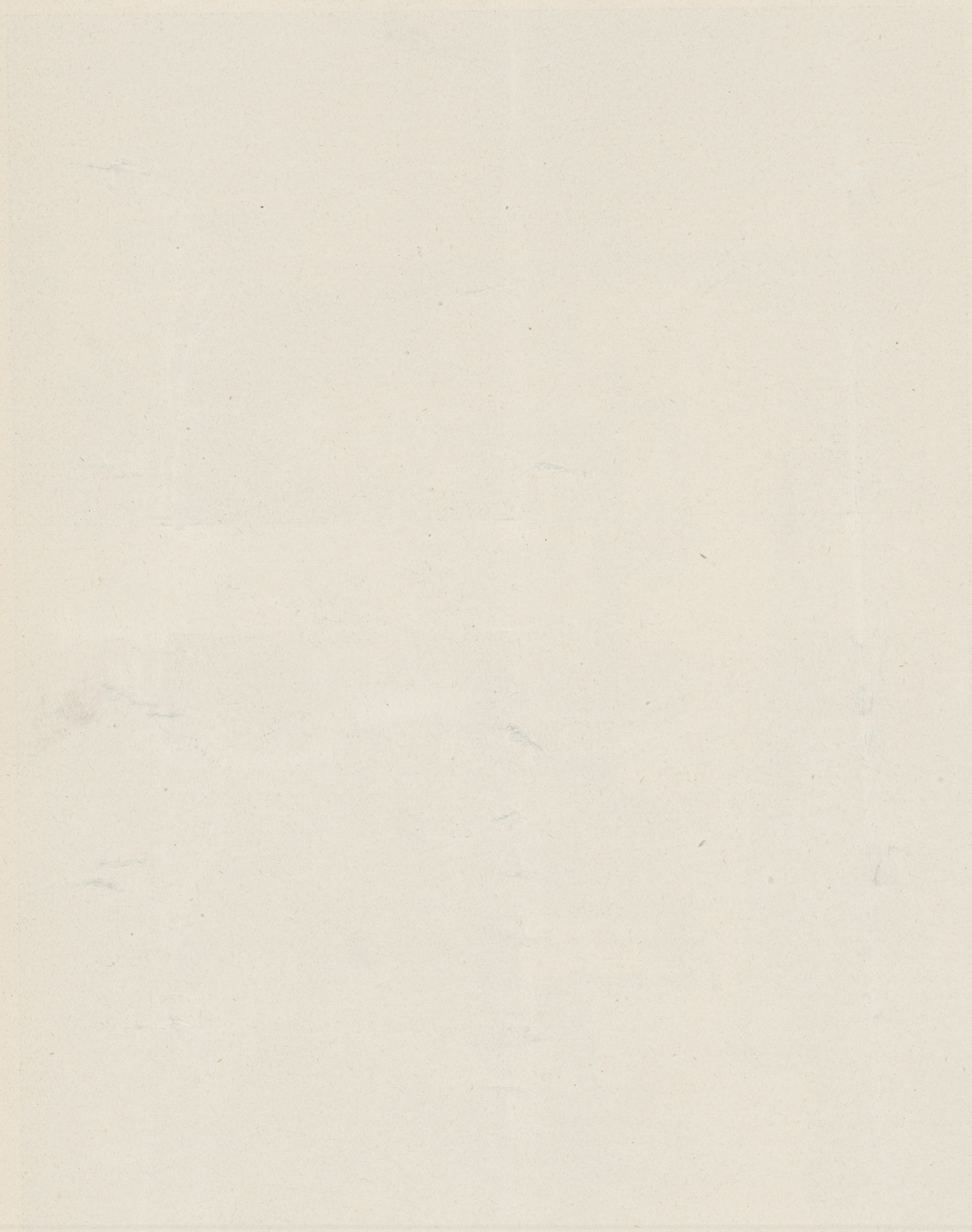
THE ALEXANDER ENG. CO.

SUPPLEMENT TO  
CANADIAN ARCHITECT AND BUILDER  
NOVEMBER, 1903

THE DINING ROOM, AVONWOOD, BOURNEMOUTH, ENGLAND.

BREWERTON & SHEPPARD, ARCHITECTS.









DRAWING ROOM AND LIBRARY, HOUSE IN ST. GEORGE STREET, TORONTO.

EDEN SMITH, ARCHITECT.









HOUSE IN ST. GEORGE STREET, TORONTO.

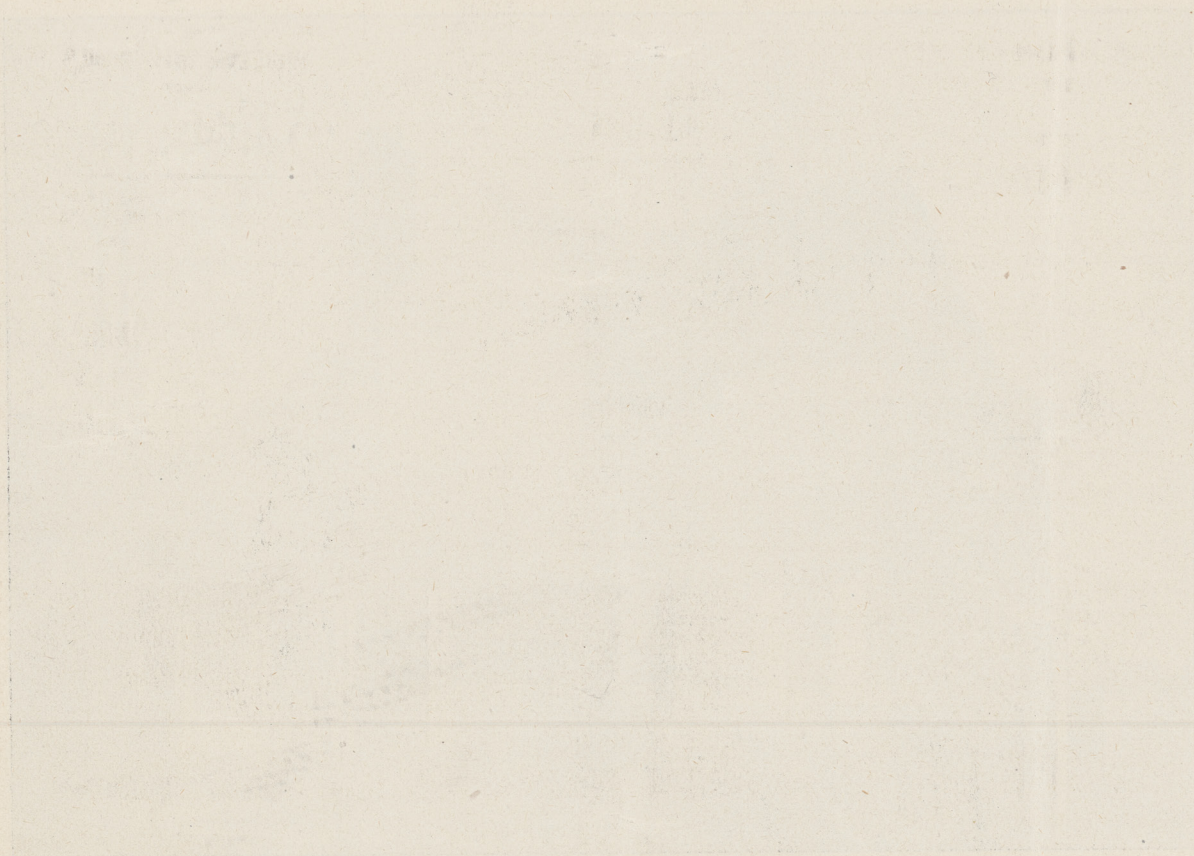
EDEN SMITH, ARCHITECT.



HOUSE IN MAPLE AVENUE, ROSEDALE, TORONTO.

EDEN SMITH, ARCHITECT.







# The Canadian Architect and Builder

VOL. XVI.—No. 191.

NOVEMBER, 1903.

## ILLUSTRATIONS ON SHEETS.

The Dining Room, Avonwood, Bournemouth, England.—Brewerton & Sheppard, Architects.  
St. Mary's Church, Berlin, Ont.—A. W. Holmes, Architect.  
House in Maple Avenue, Rosedale, Toronto.—Eden Smith, Architect.  
House in St. George Street, Toronto.—Eden Smith, Architect.  
Drawing Room and Library, House in St. George Street, Toronto.—Eden Smith, Architect.

## ADDITIONAL ILLUSTRATIONS IN ARCHITECTS' EDITION.

Institute of Civil Engineers, London.—Sir Charles Barry, Architect.  
The Knole, Bournemouth, England.—The late J. D. Sedding, Architect.

## ILLUSTRATIONS IN TEXT.

Drawings Accompanying Notes of Travel.  
Entrance to New Majestic Theatre, Toronto.  
Entrance to Grand Opera House, Paris.  
McIntyre Block, Winnipeg.

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" A. F. DUNLOP, R.C.A., Architect, Montreal.  
" FRED. T. HODGSON, Architect, Collingwood, Ont.

### A City Architect For Toronto.

Mr. Robert McCallum, for many years on the engineering staff of the Department of Public Works of Ontario, has been appointed city architect of Toronto. Apart from the peculiarity of having a civil engineer as city architect, Mr. McCallum's knowledge of constructional methods and materials should qualify him to pass upon the structural fitness of proposed new buildings, and to decide whether in structures new or old the construction is safe. We presume it is not the intention to place the designing of important city buildings in his hands. If so, why that is a matter requiring entirely different qualifications. The completion and adoption of the proposed new building by-law should follow as a natural sequence the appointment of a city architect. Mr. McCallum should lose no time in urging the City Council to deal with this important matter.

### Sand for Building.

A company who are carrying out some dredging contracts in the neighborhood of Toronto, are sending out circulars to the architects of that city offering for sale what they call "water washed sand" for building purposes. A higher price is asked for this material with the high sounding title on the ground that the "water-washing" (whatever that may mean)

ensures a higher standard of quality. Whether such is the fact or not, we cannot but admire the ingenuity exercised in seeking to find a profitable outlet for what would ordinarily be regarded as a valueless product. In this connection it may be mentioned that the lake sand used for building purposes in Toronto varies greatly in quality according to the location from which it is obtained. In some places on the lake shore the sand is clean and sharp, while in others it has a powdery coating which greatly lessens its value when used with lime and renders it altogether valueless if used with cement.

### The New Toronto Public Library.

The City Council of Toronto have approved of a down-town site for the proposed new public library building. It has also been settled that the reference and circulating libraries shall be housed in one building. This is a wise decision. The best use will be made of Mr. Carnegie's liberal gift by concentrating the expenditure in a well designed and planned building on a site convenient to the business center of the city. If proper care is exercised the building itself will form an interesting addition to the public architecture of the city, while being most convenient of access to a majority of all classes of the citizens. The



council should follow up its first wise action in this important matter by taking steps to secure the best possible design and plan for the building. Care should be taken to prevent the commission going into the hands of "the man with a pull." The best results would probably be secured by a limited competition among Canadian architects, governed by conditions approved by the architectural associations of Ontario and Quebec.

#### **L'Art Nouveau in Architecture.**

The merits of the so-called new art for any purpose are open to question. Its employment in any form of construction seems to be a violation of the principles which are generally recognized as underlying all work of this nature. Apart perhaps from its sparing employment in decoration, it should have no place in architecture. Yet it has found its way, and indeed has become a leading characteristic of recent work of not a few of the architects of Continental Europe. The results cannot be regarded as other than deplorable. The principles of construction, of proportion and of good ornamentation are all set at defiance by architects whose fancy has been caught by the new art. It is a cause for thankfulness that the craze thus far has not taken possession of architects either in the United States or Canada. It is to be hoped that notwithstanding the influence of the French school on the architecture of the United States, it may not be considered necessary to copy the new art vagaries introduced by French and German architects. Some of the new buildings embodying these characteristics recently erected in France and Germany should serve as examples sufficiently horrible to deter architects with a reputation to make or preserve from having anything to do with this fad.

#### **Casement Windows**

The artistic effect of casement windows has always been appreciated by Canadian architects, but only within the last decade has their use been ventured upon in domestic work. The earlier generation of architects were taught that the casement window was not adapted to and should not be used in this climate. They in turn taught the doctrine to their apprentices. The latter, constituting the practitioners of to-day, have to a considerable extent departed from these teachings, and are using the casement window in house architecture with very pleasing results. It is nevertheless true, that difficulty is experienced in making this style of window weather-tight in this climate. The source of the trouble lies in the use of wooden frames which are bound to shrink. In England steel frames are used and this would no doubt overcome the difficulty here. In view of the extent to which casement windows are now being used in new houses, especially in Toronto and vicinity, where the climate in winter is moderate, there would seem to exist an opening for some enterprising manufacturer to place on the market a steel casement window frame.

#### **Foreign Recognition of Canadian Skill.**

A Canadian firm of stained glass manufacturers have recently received from the United States several commissions for memorial windows. The first

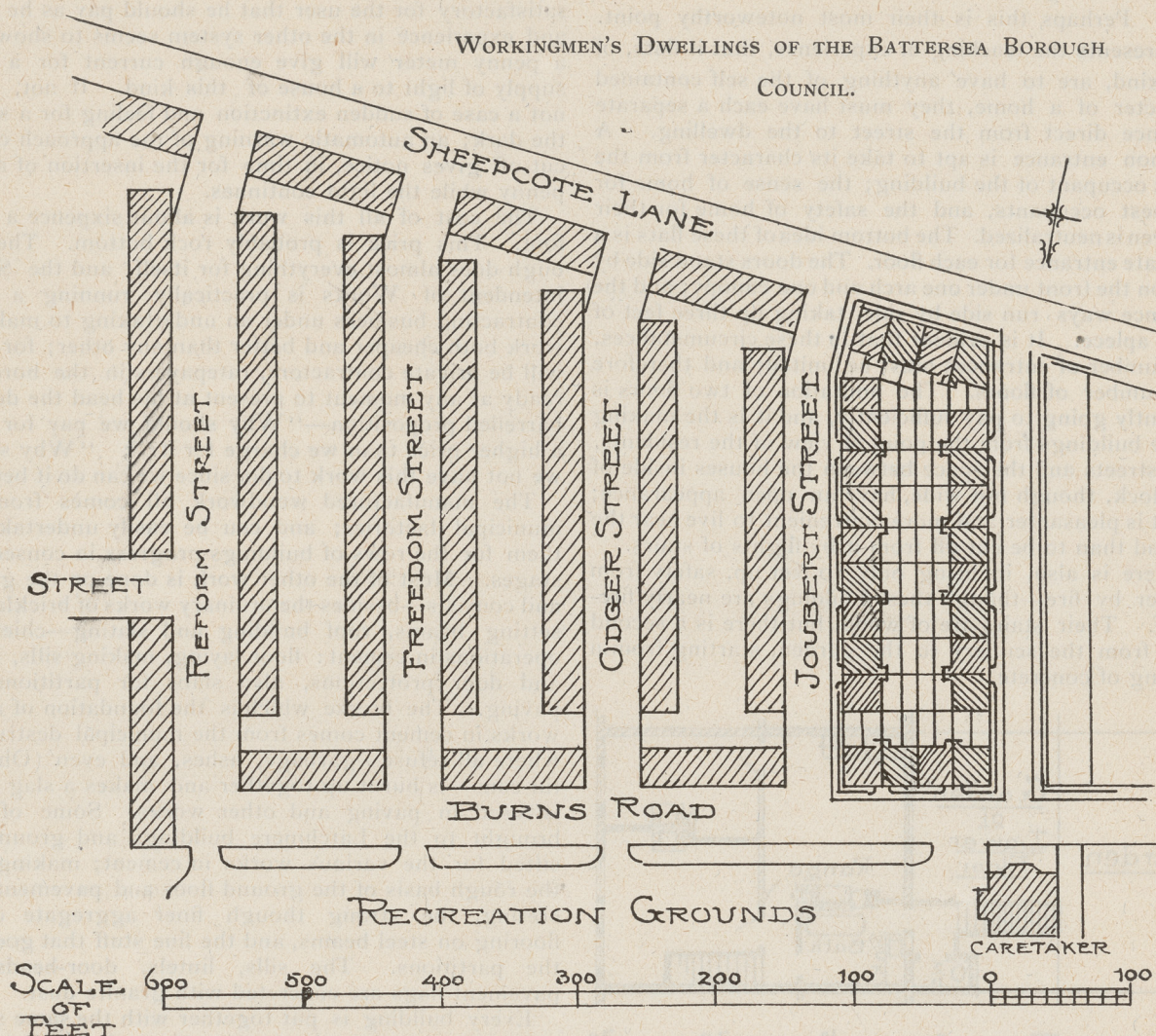
of these commissions came as the result of an inspection of work done in Canada, and subsequent ones because of the satisfactory manner in which the first work done in the United States was carried out. American opalescent glass was used in this work. An import duty of 20 per cent. had to be paid on the raw material, and an export duty of 45 per cent. on the manufactured article. This duty was added to the price and was paid by the purchaser. That the customer should have been willing to pay this extra price for Canadian work is highly complimentary to Canadian skill. Notwithstanding that a great deal of American ornamental glass is purchased in Canada, every obstacle was thrown in the way of the Canadian firm seeking to do business in the United States. In this connection it seems proper to refer to an occurrence which, if the facts are as stated, demands explanation by the Canadian Minister of Customs. It is said that a United States firm of ornamental glass manufacturers lately received an order amounting to about \$10,000 for memorial windows to be placed in a church in Montreal, and that the duty of 30 per cent. paid on these windows was afterwards refunded by the government. If the facts are as stated, the action can only be designated as an outrage. The refund is said to have been made because it was represented that the windows were to be used for religious purposes. The tariff, however, makes no such distinction, and no official should be permitted to grant privileges outside of its provisions. Otherwise our so-called National Policy is a farce, and in its administration great injustice may be done.

#### **Architectural Accessories.**

The growth of wealth and travel is resulting in a higher appreciation by Canadians of the refinements of life. Domestic architecture especially is receiving greater attention than at any previous period during the present generation, and in consequence is showing great improvement. Architects who now aspire to be leaders in their profession must not only possess a knowledge of how best to meet the varied requirements of modern commercial and domestic life, but in addition must have the artistic faculty highly developed, so that they may be able in their designing and planning to combine beauty with utility. The fact is also becoming recognized that good architecture can only appear to best advantage when in its proper setting. Therefore, due attention must be given to architectural accessories, which term includes questions of site and proper arrangement of grounds. This phase of building to which so much thought is given in older lands is now receiving greater attention from Canadian architects and building owners. That there is yet plenty of room for improvement in this direction is evidenced by the ugly unpainted high board fences used to separate one property from another. Such fences are a serious disfigurement to many otherwise attractive houses erected in good residential localities in Toronto this year. Are these ugly fences the result of false economy on the part of owners who, after spending thousands on their buildings, spoil the effect by trying to save a few dollars on the fencing, or is there available to the architect no better method of partitioning properties? Whatever the cause, the disappearance of the unsightly board fence would be welcomed as marking another advance in architectural development.



## NOTES OF TRAVEL.—VI.

WORKINGMEN'S DWELLINGS OF THE BATTERSEA BOROUGH  
COUNCIL.

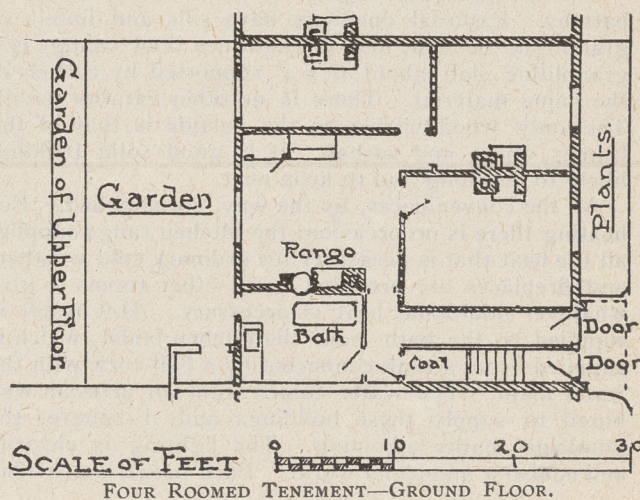
The Latchmere Estate buildings in Battersea are a good illustration of two things—workingmen's dwellings and municipal contracting. They are the work of the municipality of Battersea and occupy a portion of a piece of public ground belonging to the Borough. This land was originally let out in gardening allotments at a rental which, as it brought in only £16 a year to the municipality, must have been merely nominal. As not much good was coming of this (no doubt, under a system of gardening in a small way, the land did not improve), the idea occurred to someone that the ground might be turned to greater public advantage by building upon it dwellings suitable for working men.

Battersea is a borough in which working men are powerful. It is the constituency of Mr. John Burns, and, whether or not he conceived the idea, he was a principal promoter of the scheme and the mover of the bill in Parliament to authorize the work.

The result is evidently a financial success. The 315 dwellings, which are being erected now, are taken up as fast as they are finished and promise, when all are completed and occupied, to return an annual rental of £7000, instead of £16 as formerly. This means present work for residents of the borough; good homes for 315 families among them; and an application of the annual expenditure in rent by these families so as to reduce the poor rate of the borough to the extent of £7000 a year.

The trapezoidal piece of ground occupied by these buildings is about 800 ft. in greatest length, by 550 ft. in greatest depth. The houses are built in rows and the streets are close together, leaving only enough land

in the interior of the blocks to give for each dwelling a drying-ground about 10' 6" by the width of the house. The streets are 40 ft. wide including the width of the sidewalks. In apparent width they are 4 ft. wider on each side, as the houses stand back that much to allow for the projection of the granolithic slab which protects the entrance doors. The granolithic paving of the sidewalks is carried through to the walls of the houses as a preventive of damp foundations, but the 4 ft. space is to be railed off and, it is said, filled with plants in tubs, to brighten the fronts. The pieces of ground at the back will probably be cultivated on each side of a central pathway, for Englishmen are great gardeners even in London. Something of the kind will be needed to beautify the interior of the blocks; the interior of the only block that is completed at present looks too much like a cattle market—all fences.



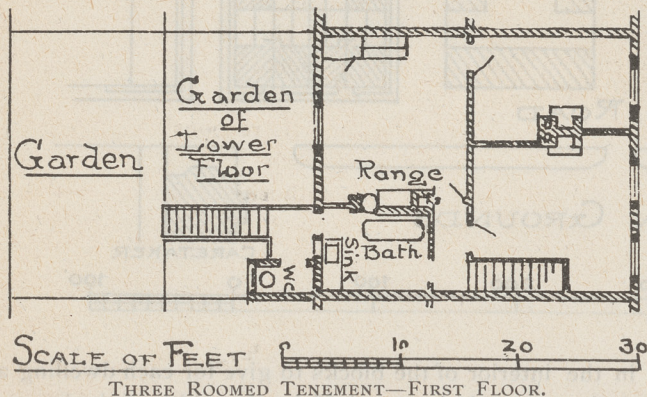
SCALE OF FEET

FOUR ROOMED TENEMENT—GROUND FLOOR.



The dwellings are in flats, but are only two floors high. Perhaps this is their most noteworthy point. It represents the teaching of experience, that if flats, of this kind, are to have anything of the self contained character of a home, they must have each a separate entrance direct from the street to the dwelling. A common entrance is apt to take its character from the worst occupant of the building; the sense of home for the best occupants, and the safety of home for their children is neutralized. The bottom idea of these flats is a separate entrance for each floor. The doors stand side by side on the front under one arch and one canopy; and the entrance ways run side by side, taking up three feet of room apiece. It is evident that in these circumstances, the number of entrances must be limited; and therefore the number of floors. The limitation of two floors is evidently going to pay sufficiently, and it is the making of the buildings from the point of view of the residents. The streets and the space between the houses inside of the block, though not wide, have an open appearance; and it is pleasanter and more convenient to live near the ground than to be cut off from it by flights of stairs.

There is also, in being only 10 feet up, safety from danger by fire—though these buildings are nearly fire-proof. Their stairs are of wood, but there is a second stair from the scullery to the garden, starting from a landing of concrete.



The exterior walls are 9" brick; ground floor partitions which carry floor beams are 4½" brick; other partitions are 3" brick nogged or made of a concrete of breeze and cement, plastered with a waterproof plaster.

The lower floor is concreted on the ground; the upper floor has 5" steel I beams, about three feet on centres, fitted in with a concrete of breeze and cement. The method is simple:—boards are pinned up tight to the underside of the beams and the concrete is filled in between the beams, flush with their tops.

It takes about 12 men to lay a floor expeditiously: 5 mixers at the door shovel the stuff into the house; it is further mixed by being passed on by 4 more men, who shovel it one to another, until it reaches the 3 layers, who ram it in between the beams one bay at a time. The wooden flooring is nailed directly to the concrete.

The roof is quarter pitch, covered with slates on battens. External openings have sills and lintels of granolithic cement, and the entrance door canopy is a granolithic slab about 6' x 4' supported by corbels of the same material. There is no other exterior detail. The only wood visible on the outside is that of the frames, doors and sashes. It is good solid building likely to last long and to keep neat.

All the conveniences, by the way, are supplied. For heating there is no occasion: the kitchen range supplies all the heat that is necessary for ordinary cold weather, and fireplaces are provided in all other rooms to give whatever additional heat is necessary. Hot water is supplied to the bath from the kitchen boiler, which is supplied from a tank connected by a ball-cock with the water main. The water comes from an artesian well bored to supply these buildings and, I believe, the municipal baths adjoining. The lighting is electric, and is also a municipal work. Each house is provided

with a penny-in-the-slot meter. It is found to be most satisfactory for the user that he should pay as he goes, and experience in the other system seems to show that a penny meter will give enough current for a day's supply of light to a house of this kind. If not, it is not a case of sudden extinction and feeling for a slot in the dark; an automatic warning of the approach of the cut-off gives notice, in time for the insertion of a new penny while the light continues.

The cost of all this work is about sixpence a cubic foot. This price is probably rock bottom. The borough does almost everything for itself, and the Superintendent of Works is practically running a large contracting business under an undertaking to make his work both cheaper and better than any other; for there will be private contractors, ratepayers in the borough, ready at any moment to present at his head the double-barrelled proposition—"Why should we pay for work a higher price than we charge for it?"; "Why should we not have this work to do, since we can do it better?"

The manufactured woodwork all comes from the municipal factories; and can be easily undertaken by them for the rows of buildings progress in consecutive stages. Most of the other work is done on the ground and consists—besides the ordinary works of bricklaying, setting beams, roof building and slating—chiefly of operations in cement: floor laying, making sills, lintels and door protections, also slabs for partitions and paving. The breeze which is the foundation of all the works in cement comes from the municipal destructors where all refuse—garbage, ashes, and even (Oh joy!) tin cans—is burnt up together and makes a slag which is used in paving and other works. Some of it is brought to the Latchmere buildings and ground and sifted for the various works in cement; making both the rough basis of the ground floor and pavement concreting, the strong though finer aggregate of the flooring on steel beams, and the fine stuff that goes into the partitions. The sills, lintels, door-heads and pavement flags are concreted with granite dust.

Every building is put together with the same standard parts; so that the construction, though good, is economical. It is not likely that so low a cost per cubic foot can be reached by any work, as good, on a smaller scale. There is of course no paring of wages in the borough that elects John Burns. There is a 48 hour week with wages running from 10½d. to 1s. an hour according to skill.

The proof of a building is in the renting. One of these four roomed dwellings—the larger size—rents for 10 shillings (\$2.42) a week. The rent is charged on the land as well as on the building, although the land cost nothing; but the London County Council, which lends the money for municipal improvements within the area it governs, required the estimate on which the loan was based to include a charge for land; valuing the whole site at £7000, which I made out to be between \$8 and \$9 a running foot of the frontages.

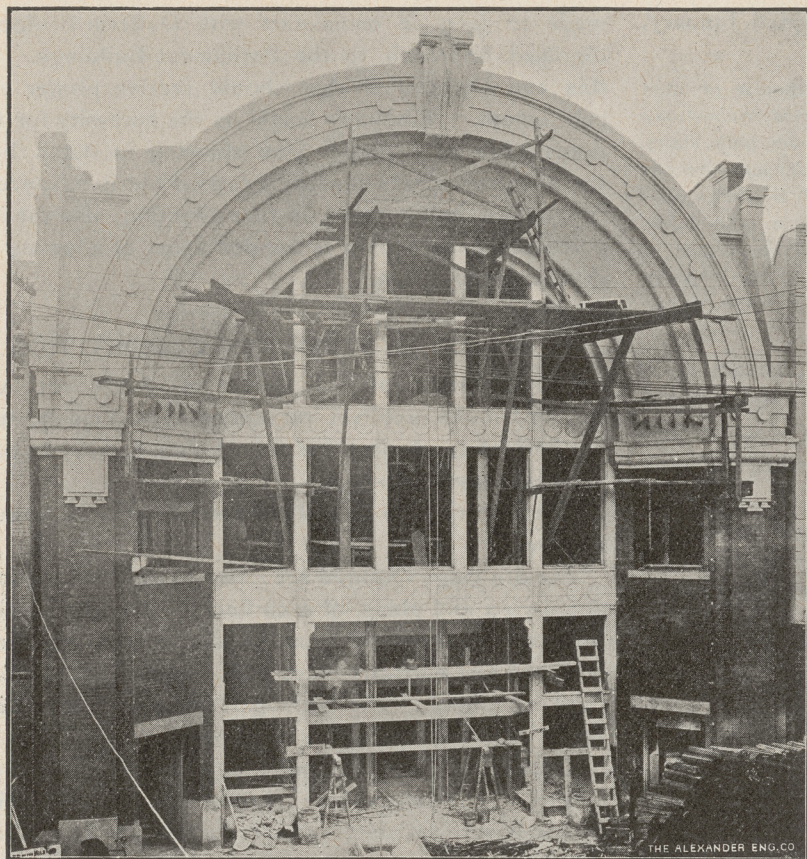
The actual value of the land to the tenants is doubled by the reservation of half the estate as an open space in connection with the buildings. Since the tenements are proving a success there is some talk of occupying this space with a second batch of buildings. Of course it would be a nice thing to have more good residences for workingmen in the borough, and to have their rent paid into the borough pocket; but to accomplish this by crowding seems an insufficient ending to an estate which lays claim, in the name of its streets, to such ideas and personalities as Freedom and Reform, Burns and Joubert.

I do not know who Ogden was, but may his memory be sufficient to preserve the land from such a catastrophe.

A reasonable compromise may perhaps be found in surrounding the space with houses. It would cut 50ft. off the ground all round, but there would be some 50 additional houses, and perhaps the place would look the neater for it, for the fronts of their own houses, in an orderly arrangement, would make a better boundary than the random backs of the neighbouring buildings.

W. A. LANGTON.





ENTRANCE TO NEW MAJESTIC THEATRE, TORONTO.

## THE NEW MAJESTIC THEATRE, TORONTO.

The accompanying engraving reproduced from a photograph shows the facade and main entrances of the new Majestic Theatre on Adelaide street west, Toronto, as they appeared a few days before the opening of the building for public performances. The building occupies the site of the Toronto Theatre. The destruction of that theatre by fire only a few months ago might have been expected to result in the erection in its place of a thoroughly up-to-date structure. How far this expectation has been fulfilled from the standpoint of artistic design the illustration will show. The theatrical profession is supposed to be composed of artists. Theatre buildings should therefore be artistic in design, and in many cities of the United States and Europe they stand in the front rank in this regard. The most notable example is the great opera house in Paris designed by Garnier, the principal entrance to which is shown herewith. Not only is the new theatre in Toronto not artistic, it is so conspicuously ugly as to be a positive eyesore.

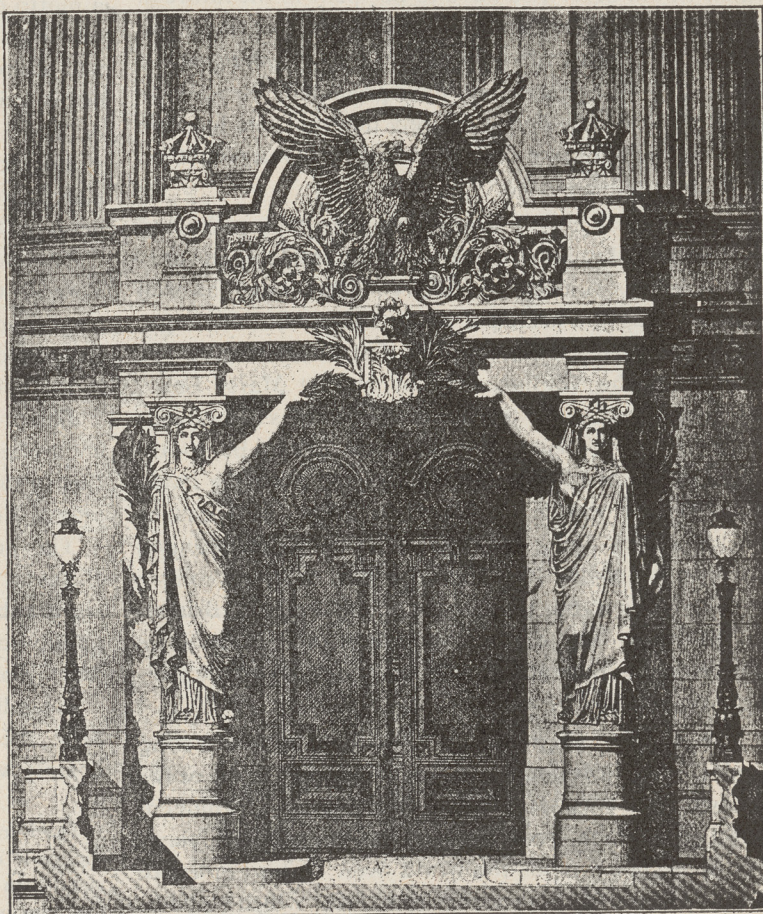
On the ground of public safety also the building seems to be deserving of criticism. Notwithstanding the fate of its predecessor no attempt seems to have been made to render it even fire-resisting, not to say fireproof. Wood and plenty of it has been employed in the construction. The arch above the main entrance is a mass of wood veneered with plaster. In the event of the building being attacked by fire, we fear it would prove a veritable tinder box.

On either side of the main entrance

are smaller entrances to staircases leading to the galleries. These staircases, which are steep and narrow, appear to be enclosed on one side by a plaster wall and on the other by the outer wall of the building. Doors opening off these staircases on both floors give access to and exit from the galleries. In the event of a fire or panic the occupants of the galleries might find their only exit by the staircase blocked by smoke and flame. The height, narrowness and steepness of these stairways would in such an event be likely to lead to many persons falling and being trampled to death.

In cases wherein damages have been sought for injury or loss of life occasioned by defects in public buildings, the Canadian courts have interpreted the law to mean that in the construction of such buildings every human precaution must be taken to prevent accident. It will scarcely be contended that this new theatre comes within reasonable distance of this standard.

The actual responsibility for the safety of such buildings, however, lies with the civic authorities and officials. If Toronto had a properly framed building by-law and competent officials to enforce it, it would not be possible for fire traps to be erected. The existing building regulations are in such a chaotic state and so out-of-date as to be almost useless. The only clause we have been able to find bearing on the construction



ENTRANCE TO GRAND OPERA HOUSE, PARIS.—H. GARNIER, ARCHITECT.



of public buildings is the following, adopted January, 1890 :

"No church, hospital, college, school, hall, theatre or other building of a like nature \* \* \* shall be used or hereafter constructed unless the same contains such a number of doors, halls, stairs, stair railings and other means of egress of sufficient size and strength as in the opinion of the Inspector of Buildings shall afford ample facilities for free and rapid egress in case of fire, panic or other cause. No such building shall be erected or altered until the plans \* \* \* shall be submitted to the Inspector of Buildings and certified by him as conforming to the requirements of this by-law."

It will be seen that the character of construction is not defined, but everything is left to the opinion of the Building Inspector. What that opinion is worth may be learned by an examination of the theatre building under present consideration.

There is no more important duty confronting the new city architect and the City Council than that of preparing and adopting at the earliest possible moment an up-to-date building by-law.

#### THE IMPROVEMENT OF THE CAPITAL.

The Ottawa Improvement Commission appointed to disburse the yearly grant of \$60,000 by the Dominion Parliament for the beautifying of the city are going about their work in a wise manner, by first securing the advice of an expert as to what should be done. For this purpose the Commission engaged the services of Mr. Frederick G. Todd, landscape architect, of Montreal, whose preliminary report is before us.

Mr. Todd points out that the proposed improvements should be national in character, as befitting the capital of the nation. He properly emphasizes the wisdom of looking far enough ahead to provide for the future requirements of a city which he estimates will in fifty years have a population of 300,000. The exercise of such wise foresight will save large sums of money which would otherwise have to be spent in the future in removing obstacles out of the way. The report states that while Ottawa can never be "the Washington of the north," as some writers have predicted, because its topographical situation is entirely different, its location and surroundings are such as admit of development on an even grander scale.

As a capital city it is suggested that the parks and open spaces should be numerous with ample boulevards and parkways skirting the different waterways, as well as connecting the principal parks and public buildings.

The principal suggestions are that forest reserves be secured in the Gatineau Valley and at Marsh Lake, which should contain specimens of the trees comprising the once great forests; that suburban parks be established as follows : 100 acres adjacent to Rockliffe Park, including the shores of Hemlock Lake, and east of Rockliffe Park along the river as far as the rifle range ; just below Remous Rapids at the west end of the city ; on both sides of the river west of Herdman's Bridge, at the south end of the city; and at the mouth of the Gatineau river extending to Pond Creek for the adjoining city of Hull.

The report suggests the location of connecting boulevards, including a drive along the bank of the Ottawa river between Rideau Hall and the Parliament Buildings, which, on account of its magnificent views would become famous the world over. This boulevard should terminate in a monumental circle which could be

made to form in connection with Dufferin Bridge, a dignified approach to the Parliament Buildings. To this end Dufferin Bridge should receive proper embellishment. Emphasis is laid on the necessity for the preparation of a proper plan showing in detail how these improvements should be carried out in advance of any action being taken in that direction, also the importance, once a plan is decided upon, of allowing no departure therefrom.

#### C. A. AND B. STUDENTS' COMPETITION.

The publishers of THE CANADIAN ARCHITECT AND BUILDER invite architectural students in Canada to submit designs in competition for a Public Library to contain 10,000 volumes.

The Library is to be built in a small park in a country town.

The drawings required are : two elevations, one sectional view and plans of each floor. The plans, section and one elevation must be drawn in strong lines with pen and perfectly black ink on white cardboard or drawing paper. The principal elevation must be a wash drawing, the colors used being such as can be photographed. In making this drawing of principal elevation competitors are requested to bear in mind that to ensure satisfactory reproduction strong contrast in shading is necessary. It is required that the drawing of principal elevation shall also indicate the character of the surroundings and principal approach to the building.

Drawings should be made to  $\frac{1}{8}$  scale in a manner to permit of reproduction within the limits of a double page of the CANADIAN ARCHITECT AND BUILDER, i.e., 10x15 inches in size.

Competitors should state the materials proposed to be employed in construction.

Drawings for this competition should be signed with a motto only and be accompanied by a sealed envelope bearing the same motto and enclosing the full name and address of the designer and the name and address of his principal. They should be sent FLAT by post or express, charges prepaid, addressed "CANADIAN ARCHITECT AND BUILDER, Toronto, Canada—Students' Competition," and must reach this office not later than noon on Saturday, January 16th, 1904.

The members of the Educational Committee of the Toronto Chapter of the Ontario Association of Architects and the Toronto Architectural Eighteen Club have kindly consented to judge the designs submitted in this competition, and their decision will be final.

The prizes offered are : First prize, cash \$15.00 ; second prize, cash \$10.00, third prize one year's subscription to the CANADIAN ARCHITECT AND BUILDER ARCHITECTS' EDITION.

The publishers of the CANADIAN ARCHITECT AND BUILDER reserve the right to publish any of the designs submitted and to withhold the prize if in the opinion of the jury the designs should not be found worthy of the awards.

Intending competitors are requested to read carefully the conditions of competition, and to strictly comply with the same in every particular.

The Bureau of Forestry of the United States intends to resume the work of testing timber. The Bureau aims at practical results, such as the values expressing the strength and stiffness of the principal species of timber.



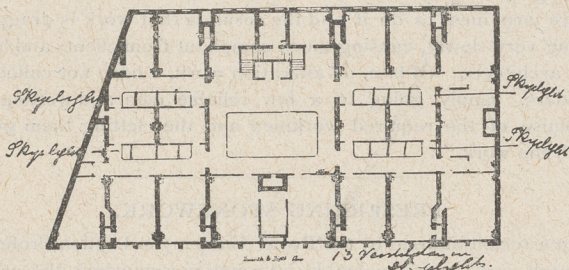
## CORRESPONDENCE

## VENTILATION OF OFFICE BUILDINGS.

WINNIPEG, MAN., Oct. 13, 1903.

To the Editor CANADIAN ARCHITECT AND BUILDER.

SIR,—I see that some sanitary authority has called attention to the bad ventilation in some of the sky scrapers of the larger American cities, although there have been large sums spent on



PLAN OF FOURTH AND FIFTH FLOOR, MCINTYRE BLOCK,  
WINNIPEG, MAN.

the mechanical ventilation of same. Judging by the experience I have had with the McIntyre Block illustrated herewith, large buildings can be well ventilated at reasonable cost and without any so-called mechanical ventilation appliances, the operative charges for which are somewhat heavy to say nothing of their first cost.

The McIntyre Block has a frontage on our principal street

have a good deal to do with the success I speak of. Trusting the above may be of interest.

Yours truly,  
WM. LITCHFIELD.

## HOLLOW BUILDING BLOCK CONSTRUCTION.

New York, November 6th, 1903.

To the Editor CANADIAN ARCHITECT AND BUILDER :

SIR,—Some time during 1902, we were very much interested in an article, which appeared in your columns under the caption "Tests of strength of hollow building blocks" in which you suggested their use for outer wall construction ; enumerating the advantages possessed by them for that purpose as principally : the saving of weight, of great importance, especially where the material must be sent great distance ; this saving of weight of further importance as it lessens the load on the foundations ;—the air spaces insure a drier wall and greater rapidity in laying.

Your article closes "It would therefore appear in general that hollow blocks should furnish a wall amply strong for the circumstances under which they are commonly used."

It might interest your readers to learn that the idea is no longer in the experimental stage, but has proven to be highly practical : and the advantages you suggested as being possessed by the hollow blocks for wall building, fully demonstrated in actual operations.

Making the blocks of hard burnt terra-cotta, 4"x8"x12" and weighing 16 lbs. each, by the addition of band-iron between the courses, we have constructed walls 350 feet x 200 feet and 24



MCINTYRE BLOCK, WINNIPEG, MAN.

feet of 173½ feet, and the sketch with plans will give a fair idea as to size. Every suite of offices has a connection to one of the numerous ventilating chimneys or shafts in the fire walls, which are shown on sketch plans. I never was in a better ventilated building (either large or small) in my life, and if desired I can detail easily provable facts that bear out my assertion that the ventilation is really good. I don't wish to advertise the McIntyre Block or to bring my name into question, but would not a discussion in your journal on this matter be both interesting and instructive to your subscribers? The general construction of the McIntyre Block, apart from the ventilating shafts, may possibly

feet 6 inches high, of a tank house for the American Smelting & Refining Co. at Perth-Amboy only 4" thick, which were computed by their engineers as being equal in solidity to walls of common brick 12" thick ; while saving in weight some 850 tons, a matter as you state of the greatest importance where the material must be sent any distance ; and a further saving of fully 33 1-3 % in cost, taking price for common brick as \$5.75 per thousand, a very low estimate.

We are under contracts with the Barber Asphalt Paving Co. to erect several buildings with this wall, for their new plant at Maurer, N. J., some of which being completed, we are enabled



to give in greater detail the actual cost per square yard.  
Cost of a "Phoenix" wall 4 inches thick and 15 feet high.

MATERIALS.

One 6-inch upright I-beam, for every 15 feet of wall (one beam to every 25 sq. yards of wall) weighing 14¾ lbs. per foot ; 227¼ lbs. for 25 sq. yards, or 8.84 lbs. per sq. yard at \$2.65 per 100 lbs. ....	\$ 0.24
Band-iron (1-16 in. x 1 in. wide) laid on every course of blocks ; 350 feet of iron to every 25 sq. yards, or 14 feet per sq. yard weighing about 1¼ lbs. at \$3.20 per 100 lbs. ....	.04
Portland cement for every 150 feet 1 barrel at. \$ 2.50	
Sand, ½ cubic yard, \$1.25 .....	.63
Cost per sq. yard .....	.19
"Phoenix" blocks (4x8x12 ins.) 9 sq. feet at 12 cts. ....	1.08
	<hr/> \$1.55

LABOR.

A mason will easily lay in 8 hours—150 sq. feet of these blocks, at 65 cents per hour.....	\$ 5.20
Helper, 8 hours at 37½ cents per hour.....	3.00
Total for 150 sq. feet.....	\$ 8.20
Cost per sq. yard for labor .....	.50
Cost per sq. yard of "Phoenix" wall.....	\$ 2.05

The estimated weight of a wall of "Phoenix" construction (4x

continue the extension now in course of construction. The place is still visible to any one who wishes to verify the facts.

Yours truly,  
N. T. GAGNON,  
Secretary Montreal Terra Cotta Lumber Co.

BUILDING CONDITIONS IN HAMILTON.

The following extract from a letter received from a Hamilton architect shows the unusual activity in building operations prevailing in that city this year: "There is more work on here than there are men to do it and the result is that work is dragging along very slowly, causing much complaint from clients and leading architects. Of late, on alteration work, I have not called for tenders, simply going to a few reliable men and getting the promise of the required workmen and then letting them go on with the work."

PRESERVING STONEMWORK.

In a recent address at the Royal Academy in London Professor Church gave some valuable information regarding the use of baryta water for the preservation of frescoes and stonework against injurious atmospheric influences. Baryta water can be used with safety when twenty times stronger than lime water, and the sulphuric acid in London's atmosphere, though it destroys



COPY OF PHOTOGRAPH SHOWING EFFECTS OF CINDER CONCRETE ON IRON AND STEEL AFTER 10 YEARS.  
(A) Channel Beam. (B) Gas Pipe. (C) Cinder Concrete.

8x12) 4 in. thick, and one of common brick 12 in. thick, say 200 feet long by 15 feet high gives :—

4500 "Phoenix" blocks at 16 lbs. each.....	72,000 lbs.
I-beams.....	2,780 "
Band-iron.....	700 "
Total.....	<hr/> 75,480 "

The same wall of common brick 12" thick, would contain 3,000 cubic feet, which even at the exceedingly low estimate of 100 lbs. per cubic foot would give 300,000 lbs. for the weight of wall, including the mortar.

Yours very truly,  
HENRY MAURER & SON.

EFFECTS OF CINDER CONCRETE ON IRON AND STEEL.

To the Editor, CANADIAN ARCHITECT AND BUILDER.

MONTREAL, Oct. 18, 1903.

SIR,—Enclosed please find copy of a photograph recently taken of some work done about ten years ago and which is a good illustration of what cinder concrete will do to iron and steel after a certain length of time.

This occurred in a building to which an extension is now being built, and cinder concrete (fortunately) was only used under a fireplace situated exactly where this wall was taken down to

the lime in a fresco, forms in combination with baryta an insoluble and practically indestructible substance which preserves from harm the colors of the painting. Professor Church said that he had been using baryta with success in the Chapter House at Westminster, where the thirteenth-century stone-carving has practically been converted into gypsum by the action of the atmosphere. So bad was the state of this carving when Professor Church commenced his treatment that when touched portions would adhere to the fingers, and it was liable to be damaged even by the slightest touch with a feather brush. He thought, however, that the application of the baryta water had preserved the carvings from further deterioration.

NOTES.

The Royal Commission on monuments of Belgium, constituted in 1835, is charged with the preservation of ancient buildings. The Commission may schedule any building or monument, and the scheduled building cannot be touched without the consent of the Commission, even if it is in private ownership. In Belgium, as in France and Denmark, grants of public money are given for the purchase and preservation of ancient monuments, and the Belgian municipalities are very zealous in the same direction. In Bruges, we understand, the facades of all the houses belong to the municipality, so that their preservation is secured, and also congruity in the case of new buildings. No object of art may legally be alienated or removed from a Belgian church.



## BY THE WAY.

The British people seem to have imbibed the craze for large exhibitions which has prevailed in the United States since the time of the World's Fair held in Chicago. It is now announced that an "International Exhibition" will be held in Manchester in 1905. I sympathize with the view expressed by some English journals, that these exhibitions have been overdone and that people have become tired of them. The term "international" as applied to most of them is a misnomer, as they are distinctly local in character.

x x x

The New York courts have granted an injunction restraining the Allied Arts Company and the Tiffany Company from making any changes in the mural decorations painted for the King Edward Hotel, Toronto, by Wm. D. L. Dodge, a New York artist. It is understood that by direction of the architect a Canadian artist is now engaged in making alterations to these paintings. The opinion prevails here that the jurisdiction of the New York courts does not extend to Canada and cannot affect Canadian artists. With regard to this the architect is doubtless acting under legal advice.

x x x

On one of the leading business thoroughfares of Chicago a crowd assembles every day, opposite a new sky scraper now in process of construction. Apart from the general interest excited by modern methods of placing materials in position at so great a height, the special object of curiosity is a man at a forge who heats the nuts used in rivetting together the steel framework. This man takes the red hot nuts out of the forge with a pair of tongs, and with a dextrous flip throws them up a couple of stories where they are caught by another workman stationed with a receptacle to receive them. So skilfully are the nuts thrown that the receiver has only to reach out a foot or two on either side to catch them. The swift passing through the air of the blazing nuts, like shooting stars, naturally attracts much attention from passers-by.

x x x

The results of the attempt which has been made in New York to provide suitable accommodation for the poorer classes, is most encouraging and should stimulate action along similar lines in Toronto. Seven years ago the City and Suburban Homes Company was formed backed by a number of philanthropic capitalists. This company have built a number of carefully planned tenements for the wage earning classes. They have as tenants 360 separate families. They have issued capital stock to the amount of \$1,707,250 and estimate the present value of their assets at \$3,000,000. After declaring a dividend of 4 per cent. they have in hand a large sum as a sinking fund. The company's report to its shareholders shows that but small loss has been sustained from apartments becoming vacant, and that the unrecoverable arrears of rents amount to but \$248.

x x x

The lines are being very finely drawn between the various unions connected with the building trades. A short time ago a strike occurred on the King Edward Hotel, Toronto, arising out of a dispute between the plumbers and the electric wiremen as to who should put the electric wires though the ducts. More recently the con-

tractors for a new warehouse building, in order to avoid a strike, were obliged to discharge two stonemasons who had been engaged in putting in position what is known as Roman stone, an artificial stone composed largely of cement. The bricklayers contended that this material was being substituted for terra cotta, that the latter material had always been put in place by bricklayers, and hence that to the bricklayers should belong the work of setting the new material. Rather round about reasoning this, but the kind of thing that the modern contractor has to put up with.

## METHOD OF DRYING OUT DAMP WALLS.

A writer in "L'Industrie" gives the following as a method which he has proved to be successful for drying out damp walls and humid surfaces:—Dissolve 5 lbs. of pure olein in 5 lbs. of benzine, and coat the damp surfaces with the mixture. This solution of oleic acid, owing to its great fluidity and the capillarity of the mortar, sinks deeply into the latter, and together with the hydrated lime in the mortar produces a formation of greasy lime which constitutes a waterproof coat. The proportions of the mixture can, of course, be modified according to circumstances; and, instead of benzine, other solvents of the nature of ether and benzol may be utilized. A variation of this method is the employment of other fatty or resinous acids instead of olein. The resinous acids form with the lime hydrate a resinate of lime which has the same waterproof properties as fat lime. Damp or newly-built walls thus coated may, after almost instantaneous evaporation of the liquid, be papered or painted. As in the case of walls in cellars or tunnels, this process can be also employed successfully to coat cement, terrazzo or mosaic work.

## QUARRIES IN SOUTH AFRICA.

Large quantities of building stone are being imported into South Africa, notwithstanding that the colony possesses large native supplies, says a writer in the Master Builders' Association's Journal. It is nevertheless found that delivered in Cape Town after a long voyage over-sea articles cost less than the native, owing to the cost of railway transit. As a result, however, of the labors of a commission of inquiry, advertisements have recently appeared in the colonial papers inviting information with regard to deposits of building stone throughout the country. Vryburg, the Paarl, and other districts possess excellent stone for building purposes if difficulties of transport could be surmounted. It appears, however, certain that in one way or another the quarrying industry in South Africa must be established, and makers of stoneworking machinery and plant will do well to watch these developments closely.

There was a strike of bricklayers employed at Neasden, England, the other day. The point in dispute was whether the British bricklayers should wait at the bottom of the ladder until the "hooter" sounded, and then go up, or whether he should go up first, and then wait for the "hooter" to call him to work. The employer was paying a half penny an hour over the union scale. The strike was finally settled by knocking off the half-penny an hour, and allowing the bricklayers to wait at the bottom of the ladder until the "hooter" sounds. The victory is costing the bricklayers about a penny a minute.—Montreal Gazette.



## INTERCOMMUNICATION.

[Communications sent to this department must be addressed to the editor with the name and address of the sender attached not necessarily for publication. The editor does not hold himself responsible for the expressions or opinions of correspondents, but will, nevertheless, endeavor to secure correct replies to queries sent in. We do not guarantee answers to all queries, neither do we undertake to answer questions in issue following their appearance.]

A Toronto subscriber asks: (1) What should be the thickness of a wall 45 feet high with ordinary load faced with broken ashlar and brick backing? (2) The thickness of brick backing? (3) What is the name of the stone used in St. Andrew's church, King street west, Toronto?

ANS.—The only way to be sure that you have sufficient strength of wall is to first ascertain definitely what load is to be imposed. The manner in which the load is imposed must also be considered. If the load is distributed over several floors, the walls need not be so strong as if the load were altogether imposed on the top of the wall. The question as to whether the load is a vertical one or a horizontal one must also be considered. Without this necessary data we are unable to fully answer your question. (2) The thickness of brick backing will depend largely upon the character of the mortar used. If cement mortar is employed the backing may be thinner than where a poorer quality of mortar is used. (3) The stone used in the construction of St. Andrew's church, King street west, Toronto, is from the Credit Valley quarries.

A correspondent in Eastern Ontario writes: I am thinking of building a house and have become interested in concrete cement blocks for that purpose. I understand buildings of this material have been erected in Toronto. Will you be good enough to answer the following questions according to your knowledge and experience. (1.) Are concrete blocks (hollow) frost proof? (2.) Can finishing coat of plaster be put on directly to blocks without lathing? (3.) Are the blocks cheaper than wood or brick? (4.) Is there any tendency in Toronto for concrete blocks to come into general use owing to greater cheapness? (5.) Are the blocks durable, what proportion of cement to sand is necessary, and are blocks proof against water?

ANSWER.—(1.) Hollow concrete blocks are more frost-proof than solid blocks, and more frost-resisting than brick walls. (2.) Probably in the case of three-fourths of the concrete buildings erected, the plaster is put directly on the blocks without lathing, and this is one of the reasons for cheapness in this form of construction. (3.) It is not possible to state whether concrete blocks would be cheaper than wood or brick. This would depend upon the locality and other circumstances. (4.) We believe that there is a tendency in Toronto in the direction of using concrete in the construction of buildings, and there is little doubt that eventually this material will be largely employed. Its greater use will depend upon prices of cement being lowered. This we believe to be a future possibility to be brought about by improved manufacturing methods. (5.) The durability of concrete is dependent on the use of cement of high quality, and care and skill in the mixing. If the concrete is properly made there is no doubt about its durability. As a proof of this it may be mentioned that blocks of concrete which formed part of buildings blown up by Cromwell, and which have ever since lain in the open air, to-day show no signs of disintegration.

From young Canadian:—I am a bricklayer, and I find much difference among workmen, regarding the proper way of finishing and bonding a flat arch over door and window openings, and placing in skew-backs. I have seen these put in both with and without closers. Please advise as to which is the proper way?

ANS.—In our opinion closers should be used for the purpose of obtaining bond only, for they are undoubtedly a source of weakness in brickwork, even when cut the proper size, that is  $4\frac{1}{2}$  in. by  $2\frac{1}{4}$  in. and as often as not any scrap of brick that is  $2\frac{1}{4}$  in. wide is dignified by the name of closer and used as such by the workman. Such practice is bad, especially when carried out in the abutments of arches. In Fig. 1., of the accompanying illustrations, a closer is shown in the first course of the skewback. This may be allowed, and when the

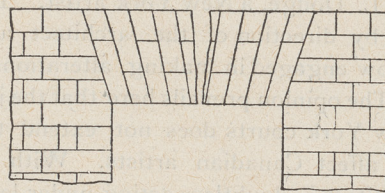


FIG. 1.

FIG. 2.

reveal is 9 in. or more the closer is rightly used, as the first skewback brick will be a long header; but when the skewback starts in a stretching course, as in Fig. 2., the closer should not be taken up in the remainder of the skewback, a bat being used instead of two small pieces. Respecting the question of bond in camber arches, the writer does not remember ever seeing the closer used in arches 1 ft. in depth, and reasons for its omission are obvious. The courses consist of a gin. brick and a  $4\frac{1}{2}$  in. bat, one half brick bond being obtained. To increase the number of pieces in the courses by introducing the closer would weaken the arch, besides adding to the cost of the cutting and settings. Arches having a face depth above 1 ft. are sometimes worked with the closer, and the advantage of its use in these cases is that it enables the top stretchers in the first few courses to hold out. Bricklayers do not seem to care much how they put in skewbacks, but cut bricks to suit regardless of rules or custom.

From N. T.:—I am building a large farm house in New Ontario, and have got two pairs of sliding doors or rolling doors to put in and fit up, and, as I have never done this kind of work before, I would like to get a little information regarding the preparation of the space where the doors are to roll, if you will kindly give me the same through your valuable column?

ANS.:—The first thing necessary is to see that your floor is level. If it is, then the whole business is quite easy, but if it is not, then the timbers for the track must be placed parallel with the floor, so also must the top jambs or heads of the opening. This is important, for should the floor be out of level and the track made level, one of two things will occur, either the track must be made level with the highest point of the floor, in which case one door will have too much space under it, or the other door will strike the floor and throw the hinges off the track when pushed back. This we think will appear plain to our correspondent. The illustration given at Fig. 3 shows how the "pocket" for the doors is to be prepared. It will be noticed that the



opening between the tracks and between the jambs, through which the lower part of the door hanger passes, is only one inch wide. The hangers have small friction rollers, which run between the two tracks, serving as a guide for the wheels above, and not leaving more than 1-8 inch play between the two tracks. This 1-8 inch is plenty of room if the work is properly done. It is necessary that the friction rollers run close to the

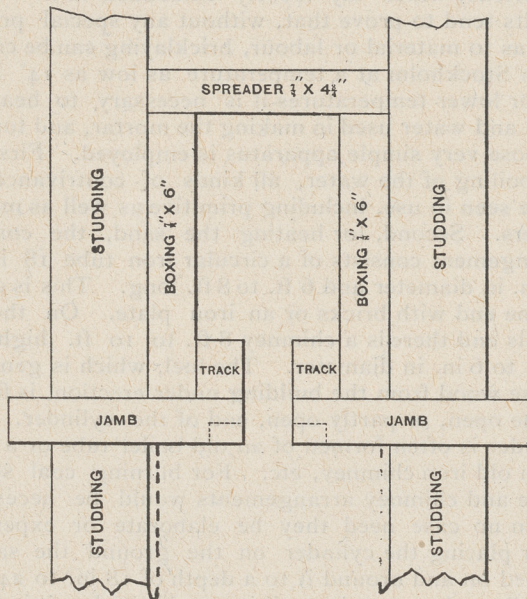


FIG. 3.

track in order that the doors may run true and without crowding the door steps. But suppose the boxing be insecurely fastened to the studding, and the dampness from the plastering, when it is put on, causes the two 6-inch boards to cup. The tendency at once is to narrow the opening required by the friction rollers of the hangers, thus causing a binding of the door hangers between the two tracks. Again, suppose the spreader, which is for the sole purpose of keeping the tracks the right distance apart, is carelessly put in a little narrow, or, perhaps, left out entirely, as it is occasionally by some, who consider it an unnecessary appendage to the working of sliding doors, then there is practically nothing to keep the tracks from springing together, causing a binding of the doors. There are several kinds of hangers now in the market some of which have a metal track which is held in place by steel brackets. This style of rail is much easier to adjust than the wooden track shown in the diagram, but it has its disadvantages. The dotted lines shown, represent thin matched stuff lining up the inside of the pocket. This is necessary, as the box should be made tight all round on the inside, or there will be a cold draft always making its way from the space between the joists and floor, and escaping through the door openings. In hanging sliding doors it is better, if possible, to do so before the jambs are set. Many times little things that would interfere with the proper working of the doors can be readily remedied; whereas if the jambs are set, they will be concealed from the general view and not discovered until they had caused a considerable amount of trouble. Sliding doors that won't slide are an abomination and a great disturber of temper.

From "Enquirer"—Will you kindly inform me of the best material to use for backing for gilding on

glass? I have tried asphaltum, but find, when it is necessary to shade the lettering, the paint softens the backing and spoils the work. What I want to know is, whether there is a backing that will harden in twelve hours and increase the burnish of the gold?

ANS.—The best backing for gilding on glass, when the same is to be shaded is dry lampblack mixed with quick-drying rubbing varnish and thinned with enough spirits of turpentine to make the material work evenly and freely. Or drop-black ground in japan, thinned with turpentine to which a moderate portion of quick-drying varnish has been added, will serve the purpose also very well. Either of these will not soften under the shading color, and can be made to dry hard in less than 12 hours, but will not increase the burnish of the gold. That is an entirely different matter, and depends on the condition of the size used in laying the leaf and on the subsequent treatment in burnishing. Some authorities recommend the use of gum arabic size, one drachm to one pint of boiling water, which is to be filtered through blotting paper, and to which, when cold one teaspoonful of white whiskey is added. Kept in a bottle well corked, it will keep for a year. The most favoured size, however, consists of isinglass, of which a piece of size of a nickel is dissolved in pint of rain water, boiling hot. This solution is filtered through filtering or blotting paper, and when cold a teaspoonful of whiskey or alcohol added. If the use of asphaltum for backing the gold leaf is avoided and japan color, thinned with rubbing varnish, used, the gold will retain its burnish, because such colors will not strike in, as may be the case with asphaltum.

From A. Z. :—I am building a large barn 30 ft. wide and 110 ft. long and am to put a gambrel roof on it. Could you publish a sketch of a roof that would be suitable for this building? I am sure other car-

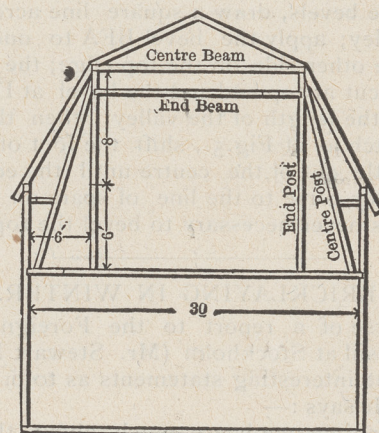


FIG. 4.

penters besides myself would benefit by such a sketch, particularly if any description was given along with it?

ANS.—The accompanying sketch illustrates a good rule for this purpose. Divide the width of the building into five equal parts; set the purlin posts one-fifth of the width of the building in from the outside posts. Allow the outside posts to extend one-fifth of the width of the building above the second floor. Then, for the height of the first section of the roof, let the inside posts extend above the outside posts to the amount of one-fifth of the width of the building and one-third of one-fifth additional. For example, the sketch Fig. 4



illustrates the building 30 ft. wide. The purlin posts are set in from the outside posts 6 feet, which is one-fifth of 30. The outside posts extend above the second floor 6 ft. (one-fifth of 30), and the height of the inside or purlin posts above the top of the outside post is 8 feet, being one-fifth of 30 (6 feet) plus one-third of 6 feet (2 feet), making 8 feet. After determining the pitch of the lower section of the roof in this manner, make the upper section one-quarter pitch. Set the middle posts back, bracing under the roof. By this construction they are out of the way, affording more room in the upper story, all of which is clearly illustrated in the sketch, and which it followed, will give excellent results.

From "Puzzled": I would like to know if the bevels for a valley rafter are obtained in a similar manner to the bevels for a hip-rafter, only of course, reversed?

ANS.—The method of getting bevels for a valley is somewhat similar to the method for obtaining bevels for a hip-rafter. The manner is shown at Fig. 5. Let AB-BC be the ridges and BD the valley, draw BE square to BD and equal to the height of the roof, draw

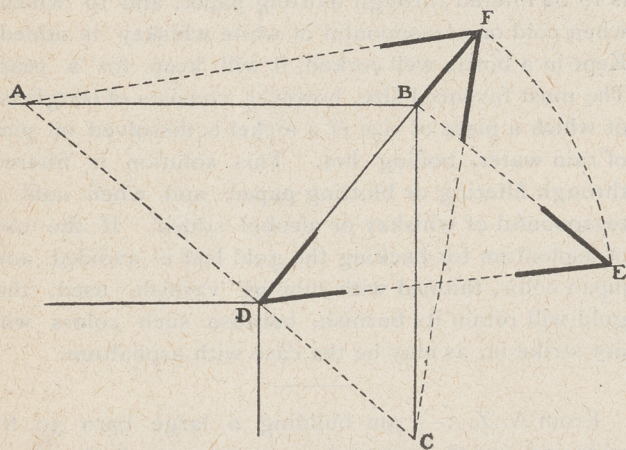


FIG. 5.

DE from D describe the arc EF and continue DB to F; through D draw ABC square to DB, draw AF and FC; to apply the bevels, draw a square line across the top of the valley; apply the bevel BFA to one side and BFC to the other side on the top edge; the bevel at E is the side cut at top end and the bevel at D is the foot cut, BE is the length of the valley; when the roofs are unequal pitch as at Fig.5., shift the foot of the hip or valley a little out of the centre until the edges of the hips or valley come to the line of spars on both sides, so that it is never necessary to bevel the top edges.

## BRICKLAYING IN WINTER.

In the course of a report to the Foreign Office the British consul at Stockholm (Mr. Stewart MacGregor) makes some interesting statements as to bricklaying in winter. He says :—

In winter-time one hears much about the want of employment for bricklayers and others in the United Kingdom on account of frosty weather. Yet anyone residing in Stockholm during the winter months can see bricklaying carried on in hard frost as an everyday occurrence. This, from a British point of view, is so unusual and important that I have endeavoured to obtain full particulars as to how it is done, hoping that these details may perhaps be useful at home. I have to thank Mr. P. Graham, a fellow countryman long resident in Sweden, for the following account of the system here adopted, and will just add that the art of building stands very high in Stockholm, much of the work done being both ornamental and of excellent quality.

A few years ago a series of experiments were carried out here with a view to deciding the lowest temperature at which bricklaying might safely be carried on. Three

different temperatures were decided on, namely: first, 23 degs. Fahr.; second, 14 degs. Fahr.; third, 6 degs. Fahr. The bricks and mortar were, as to quality and conditions, such as are commonly used here. The walls thus erected during winter were allowed to stand till the following autumn, when they were torn down and the following results noted:—Nos. 1 and 2. Perfectly satisfactory. The mortar was quite hard and sound, and had to be scraped from the bricks. No. 3. Unsatisfactory. The mortar did not adhere at all to the bricks, which lay loosely embedded in it. These results tend to prove that, without any special precaution as to material or labour, bricklaying can be carried on in Stockholm at a temperature as low as 14° Fahr.

For lower temperatures it is necessary to heat the sand and water used in making the mortar, and for this purpose very simple apparatus is employed. First, for the boiling of the water, all kinds of contrivances are to be seen in use, including primitive as well as modern boilers. Second, for heating the sand, the common arrangement consists of a circular iron tube 18 in. to 24 in. in diameter and 6 ft. to 8 ft. long. This is closed at one end with bricks or an iron plate. On the top at this end there is a chimney 8 ft. to 10 ft. high and 5 in. to 6 in. in diameter. The fuel, which is generally refuse wood from the building under erection, is fed in at the open, or partly open, end of the cylinder. This cylinder is often formed of an old boiler tube or a piece of an old iron chimney, etc. For burning coal special grate and chimney arrangements would be necessary, but in no case need they be elaborate or expensive. After placing the cylinder on the ground the sand is heaped on and around it to a depth of 18 in. to 24 in., and allowed to remain until it gets hot, when it is taken away from where it is hottest and replaced by fresh sand. The mortar should be made in a room where the temperature is kept well above freezing. This temperature should naturally be regulated according to the frost that has to be counteracted. Generally, the builders here make a room of this kind by roughly boarding in a part of the scaffolding, simplicity and cheapness being the prominent characteristics of all the arrangements.

When building in frosty weather the following precautions should be observed :—(1) In laying the bricks care should be taken to avoid shifting them after they have once been set in the mortar. (2) Never use old or stale mortar, but arrange supply to correspond with demand. (3) it should be understood that the brick used here is of a light or porous character, which readily absorbs the moisture from the mortar. Hard pressed or calcined bricks and stonework generally are not suitable for building during frosty weather, but edgings, or ornaments, etc., of such material can easily be dealt with by slightly warming them before bringing them into position. This can be done by keeping them a few days in a wooden shed heated by an open coke stove. In some cases it is found advisable to cover in with rough boarding the part of the wall where such stonework is extensive. In some cases a very small coke fire is found sufficient to keep the temperature high enough to prevent any damage to the mortar. (4) Although brick building can thus be carried on safely under any of the temperatures already named, this does not apply to plaster or cement work, which should not be done at or below freezing point unless proper heating arrangements are made.

Whereas in Stockholm fifteen or twenty years ago almost all building was suspended during four to five months every winter, it is now the exception that such operations are hindered by frost more than a few days or a few weeks annually, and this though there is much more stone and ornamental work in the buildings now being erected than in those of an earlier period. What twenty years ago was considered practically impossible has now become everyday practice. To sum up shortly: (1) The bricks should be porous and perfectly dry, so that they may readily absorb the moisture in the mortar. (2) The water, sand and bricks must all be heated.



## THE TORONTO ISOLATION HOSPITAL.

To the Editor of the CANADIAN ARCHITECT AND BUILDER:

SIR,—I would respectfully call your attention to the new addition to Isolation Hospital now being erected. The addition is placed between the jail wall and south wing of old hospital—10 feet from latter and about 15 feet from former. The shed and yard where prisoners work is just under the hospital windows, while the women's work rooms are only a few yards farther away. The jail hospital and ward windows are in close proximity to the new addition, which is to be provided with a cold air fan to remove all contaminated air—blowing it out on a level with jail windows, so that it may not linger on the way and may be received fresh.

It is surely a disgrace to civilization to have this sort of return to the historical ghettos of ancient history, and will if possible make the hospital more of a contagious imparting center than it has been—where so many have come in with one disease and got another before they left—owing to interference with original plans of architect and want of realizing that an hospital for contagious diseases ought to be worked on different plans from those for the treatment of non-contagious diseases.

The law requires an hospital of this kind to be placed 150 yards from any dwelling, and the old hospital was burned down because it was only 140 yards from one dwelling. The new one is not 100 feet from hundreds of people, and guards and prisoners have to work and pass within a few feet of its windows. We have heard it proclaimed that 9 miles of still water in our deep lake is not enough to purify it. Now here is a case where as many feet of air is supposed to purify it. What is the given data for each?

I have said nothing of the blanketing of windows between new and old, with exclusion of light and air, and consequent harbouring of bacteria. I have said enough to show how careless some authorities can be.

Yours respectfully,  
PLUMB RULE.

[EDITOR'S NOTE.—We have investigated the statements made by the writer of the above letter, and find that at least some of them are incorrect, and that there are special circumstances which ought to be stated. While the Ontario Health Act provides that a hospital for contagious diseases must be situated 150 yards from any dwelling, the Ontario Legislature granted a special Act permitting the placing of the original Toronto Isola-

tion Hospital, as well as the new building now being erected, on the site which they occupy. As the Provincial Government are the owners of the jail property, it must be concluded that they did not consider that the inmates or officials of the jail would be likely to be affected by the proximity of the hospital buildings. The jail yards proper are sufficiently far away to almost prevent the possibility of infection reaching them through the open air space intervening. It is learned that it is the intention of the hospital authorities to ventilate the new building entirely by means of fans, and to keep closed at all times the windows facing the jail yards. The statement that the foul air from the hospital will be blown out on a level with the windows of the jail is hardly correct. The air will be drawn by suction fans into a ventilator and by fans will be driven vertically out of the ventilator at the top of the building at a height of 50 feet. This ventilator is sufficiently distant from the jail building to make it certain that the air thus discharged under pressure will be dissipated into the atmosphere instead of finding its way into the jail windows.]

The report of the Building Inspector of St. John, N.B., shows that thus far sixty seven building permits have been issued this year, and that in quality as well as quantity building improvements have surpassed those of any recent year.

Bids were opened for a school house in Indianapolis the other day, and the cost was \$14,000 more than there was money to build with. Buildings in neighboring towns have overrun the estimates from 30 per cent. to 100 per cent. This is owing to two causes: First, an absolute increase in the cost of material and labor; second, an uncertainty as to the course of the market for material and labor. Strikes and rumors of strikes leave us at sea as to the future. The builder is not really disposed to take the short end of it.—The Clay Worker.

The Eiffel Tower in Paris, the removal of which at an early date was referred to in a previous issue, is 986 ft. high. In its construction were used 7,000 tons of iron, 2,500,000 rivets, weighing 450 tons, and 12,000 working drawings. The legs measure about 250 ft. at the base, while the platform at the top is 53 ft. square. The total thrust on the foundations is 565 tons, not including wind-pressure; under a maximum wind-pressure the thrust is 875 tons. The structure cost \$1,000,000, of which sum the State contributed 60 per cent. the remainder being supplied by Mr. Eiffel, who has received for twenty years the profits from valuable concessions.

## NOTES

The legislature of Oregon has passed a bill requiring the appointment of a board of examiners of plumbers in every incorporated city of 4,000 population.

A public subscription is about to be opened in Toronto for the purpose of erecting a monument to the memory of Toronto soldiers who fell in the South African war.

Mr. E. J. Lennox, architect of the new municipal buildings in Toronto, announces that the total extras on the buildings will not exceed \$15,000. This must be considered a very satisfactory showing when it is remembered that the buildings cost upwards of \$2,000,000, involving eighty separate contracts.

Ald. Curry, who is an architect, is urging the City Council of Toronto to adopt a number of amendments to the present method of assessment for local improvements. One is that suggested by this journal last year, viz., the placing of a special tax on the owners of vehicles. The owners of delivery wagons are chiefly responsible for the wearing out of the pavements and are most benefitted by good pavements, by means of which the cost of renewal of both vehicles and horses is greatly lessened. These are the people therefore, who should contribute most largely to the cost of good pavements.



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Contributions of value to the persons in whose interest this journal is published are cordially invited. Subscribers are also requested to forward newspaper clippings or written items of interest from their respective localities.

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## BUSINESS NOTES.

A representative of this journal had the opportunity recently of inspecting the new factory of the Canadian Heating and Ventilating Co. at Owen Sound, Ont. The company commenced to build on the first of June last, and now occupy the completed building, a substantial stone structure, with modern equipment for the manufacture of furnaces, radiators, stoves and ranges. The management of the company, which is capitalized at \$200,000, is in the hands of Mr. J. Christie.

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## MOVING CARRARA MARBLE.

The marble quarries of Carrara, Italy, number about four hundred and give employment to nearly seven thousand men. Hard labor is the rule, for the distances separating quarry from quarry and the declivitous nature of the country make the use of machinery almost impossible. Hence, say a writer in Pearson's Magazine, have grown up the methods of the lizzatura, or workmen, who convey the marble over the roadless steepes that stretch from the quarries to the wagon track.

As soon as a great fragment of marble, detached by a blast, has stoped rolling, it is roughly squared into a block weighing, say, forty tons. Then the lizzatura set about getting it down.

Along certain lines of descent offering the least resistance a succession of stout posts has been firmly driven into the mountain side. The men, by means of crowbars and screwjacks, raise the block on to a soaped skid of beechwood. Before doing this they secure the block by means of three long kempen cables, with which they take turns around the posts. They pay out sufficient rope to allow the ponderous mass to slide over the soaped skids by its own weight, but not enough to allow it to gain too much momentum down the incline.

During the descent, besides the men tailing on to the ropes, two or more men are seated on the block. A man following closely on the wake of it hands them the skid just passed over, which they resoap and hand to a man who keeps just in front of the moving mass, to put down in its path, and so provide a continuous slipway. This last-mentioned worker has the most perilous task. If one of the cables parts at a critical moment, or if a mistake has been made in paying out or slackening them, he must inevitable be crushed.

It is an amazing fact that in former times the lizzatura

used only one cable to hold back the load, until the government, rightly regarding their's as a dangerous occupation, passed a law that not less than three cables should be employed. On an average, this work is responsible for three deaths a year, but for the most part the finest discernment, judgment, coolness and skill are displayed by the lizzatura, who work in gangs numbering twelve to fifteen men.

It is really astounding to see how these workmen handle the huge masses of marble, without machinery of any kind but crowbars and jackscrews. Pieces of forty tons' weight, with those simple implements, are loaded on bullock wagons and carried down to Carrara all the way by road—a terribly toilsome process, for the mountain road is more like a bed of a torrent than a beaten track.

## NOTES.

Up to the first of October the value of new buildings erected this year in Vancouver, B.C., as represented by the building permits is \$1,300,000. The total for the year is expected to reach a million and a half.

Interest has been aroused by the announcement, as the result of a prolonged series of experiments, of a method of so treating timber as to secure even from soft wood a largely increased toughness and hardness. The process is described as one of vulcanizing, comparable in some respects with Bessemer's process for converting iron into steel, and is the invention of Mr. Powell a Liverpool merchant. The treatment to which the timber is subjected is, roughly speaking, that of saturation at boiling point with a solution of sugar, the water being afterward evaporated at a high temperature. The result is to leave the pores and interstices of the wood filled in with solid matter, and the timber vulcanized, preserved and seasoned. The nature of moderately soft wood, it is claimed, is in this way changed to a tough and hard substance, without brittleness, and also without any tendency to split or crack. It is also rendered remarkably impervious to water. Hardwood similarly treated derives similar benefits. Moreover, it is claimed that the process may be completed and timber turned out ready for use in a few days.

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## PERSONAL.

Mr. Fred J. Hodgson, of Collingwood, Ont., was recently presented on his birthday with a gold watch charm set with diamonds, as a token of appreciation by the publishers of his books, Messrs. Frederick J. Drake & Co., Chicago. The books on building recently written by Mr. Hodgson and published by the above firm, have had a very rapid and extended sale.

The death in Toronto last month of Mr. Edward Terry is felt to be a distant loss. The late Mr. Terry was specially well known to the builders of Toronto, having for many years been engaged in the sale of builders' supplies. He was a man of exemplary character, and as a citizen was most highly esteemed.

The death is announced at Owen Sound of Mr. R. J. Doyle at the age of 69 years. He was one of the earliest pioneers of the Portland cement industry in Canada, and one of the founders of the Owen Sound Portland Cement Co.

## NOTES.

Mr. John Clayton, the designer of the cartoons for the mosaics on the Albert Memorial in London, has recently made a close inspection of the mosaics, and finds that with a small exception, the whole of the colored figures are in as good a condition as when first fixed—now thirty years ago. The gold background, however, is seriously damaged. Experiments are now proceeding to obtain gold cake which can resist the effects of frost and moisture; or, failing this, to find some suitable substitute for gold enamel.

The idea of fixing the sizes of bricks is by no means a novel one, and, if they had not been repealed, there were old Acts of Parliament, going back three and a quarter centuries, giving their dimensions. By an ordinance made in 1570, the thirteenth year of Queen Elizabeth's reign, the size of a brick was to be 9 in. by  $4\frac{1}{4}$  in. by  $2\frac{1}{4}$  in. An Act of the twelfth year of George I., cap. 35, "to prevent all unlawful combinations among any brickmakers or tilemakers within fifteen miles of the City of London, in order to increase or enhance the price of bricks," was more stringent, as it

prohibited the use of "Spanish mixture," of soil or of breeze in bricks, and provided that place bricks shall be, when burnt, not less than 9 in. long, not less than  $4\frac{1}{4}$  in. wide, and not less than  $2\frac{1}{2}$  in. thick, adding that all stock bricks shall be of the same dimensions as and 1-8 in. thicker than facing bricks—a puzzling requirement. By a later Act, that of 17th George III., cap. 42, all bricks made for sale must measure  $8\frac{1}{2}$  in. by 4 in. by  $2\frac{1}{2}$  in. thick.—Mr. Max Clarke.

The settlement of piling and cribwork under heavy loads has been investigated at Duluth for Capt. D. D. Gaillard and Mr. J. H. Darling. At the south pier of the canal there is a row of cribs, each 100 ft. long, 21 ft. deep, and 24 ft. wide except for the end one, which is 36 ft. wide. Their channel walls are 2 ft. thick, and rear walls 1 ft., and there are 10 in. solid transverse bulkheads every 4 ft. There is an 8 in. floor resting on piles nearly 14 in. in diameter at the cut-off, spaced 4 ft. and 5 ft. apart. The piles were sunk 17 ft. in good sand bottom by means of a water-jet and 2,800 lb. hammer. The final penetration under a fall of 15 ft. to 30 ft. did not exceed 1 in. The cribs were filled with stone and gravel and support a concrete superstructure imposing a net load, allowing for buoyancy, of 15.5 tons per pile in the main pier, and 18.9 tons per pile in the pierhead. The pierhead settled 0.03 ft. in the first seven months and 0.007 ft. in the next nine months; then the concrete was put in place, and directly afterwards there was a further settlement of 0.065 ft. and 0.05 ft. more in the next three months. The concrete itself settled 0.195 ft. in the first three months after building, and 0.043 ft. in the next six months. In the main pier, the average settlement of the cribs was 0.05 ft. previous to loading with concrete, and 0.07 ft. during the six months of loading; the average settlement from the landing of the cribs to June, 1901, an average period of 22 months, was 0.146 ft.

## BUSINESS NOTES.

All the travellers and salesmen of the Canada Paint Company have been advised to meet in Montreal on November 18th., to attend the yearly convention and annual re-union of the manufacturing and selling forces. The business, it is said, shows a remarkable uplift for 1903 and points to a busy winter for the several factories of the company.

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## NOTES.

The Berlin Interior Hardwood Company have built a large factory in which to manufacture interior wood work.

The Dutch Government will invite competitive designs for Andrew Carnegie's Palace of Peace, for the erection of which he donated the sum of \$1,500,000.

The observation tower that has been a feature of the Tower Hotel at Niagara Falls since 1893, is being taken down and the material will be used by the American Wireless Telegraph Company in building its tower at the World's Fair.

Following the example of Ontario, the Department of Education of Manitoba have had prepared a number of model plans of school buildings, which are placed at the service of school boards contemplating the erection of new schools.

Mr. Chausee, City Building Inspector of Montreal, attended the convention of American Municipalities held recently in Minneapolis. At this convention the subject of tall buildings was discussed. The consensus of opinion was that ten stories should be the limit.

In an article on foundations in the Builders' Journal, Prof. Henry Adams points out, among other matters, that a greater height in brickwork means a greater settlement above the foundation level, owing to the additional number of bed joints; also

that when sand underlies the foundation the chief precaution is to avoid drainage operations in the neighborhood, especially if the site is a wet one.

Rubber tiling, as supplied to the trade by the Dunlop Tire Company, is gaining steadily in favor. It is interlocking, sets smooth, and is noiseless to walk upon. The nature of the material employed, hard rubber, admits of being worked into many geometrical forms, takes bright coloring and does not wear down under the most continual foot traffic. For interior corridors in offices where it is desired to have a noiseless and at the same time sanitary carpeting, the rubber tiling is the most satisfactory thing in the market.

American architects occasionally secure profitable commissions in Canada, but in few instances have Canadian architects been employed to carry out works in the United States. Such an instance, however, is now before us. Mr. Herbert G. Paull, Toronto, has been commissioned, without competition, to prepare plans and superintend the construction of the new William Smith University at Geneva, New York. The cost of the first group of buildings, consisting of the central administration building and two side pavilions devoted respectively to a women's residence and the educational features of the university, contracts for which have recently been let, will be about a quarter of a million dollars. The buildings are to be constructed of buff colored pressed brick with rose colored granite base and trimmings.

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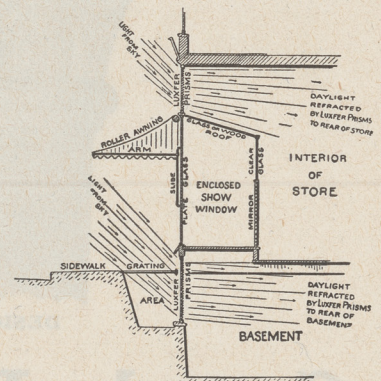
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## NOTES.

"Has there ever been any insanity in your family?" thundered the prosecuting attorney. The witness winced. "Well," he replied hesitatingly, "I have a daughter who refused to marry a plumber and eloped with a poet."

A charter has been granted to the Automatic Ventilating Closets Co., Limited, of Toronto, with a capital of \$60,000, to manufacture plumbers' and builders' supplies. The provisional directors are: H. B. Robinson, C. H. Thompson and J. Dougherty, Toronto; G. E. Silvester, Sudbury; and W. Vanduzen, Toronto Junction.

The Filipinos have begun the erection of native villages on the Fair grounds at St. Louis. No nails are used in the construction. The bamboo poles, which range in length from 40 to 90 feet, furnish the timbers. These are tied together with bejuco, the fibre of rattan. Nipa forms the roof. Nipa is produced from the leaves of a palm peculiar to the Philippine Islands. The floors are bamboo, split into small sections, and so tied to the cross sections that they form a smooth surface. The bamboo poles, as they appear on the cars, are dirty and weatherstained. When they are converted into houses by the natives they are scraped with bolo blades and lacquered. They take on a fine polish.

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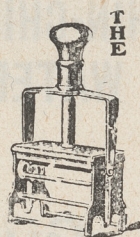
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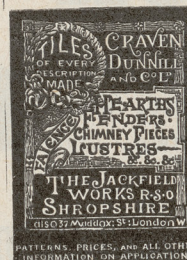
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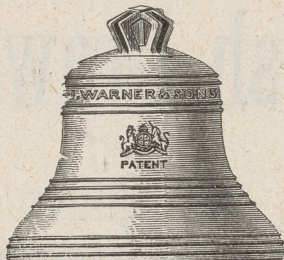
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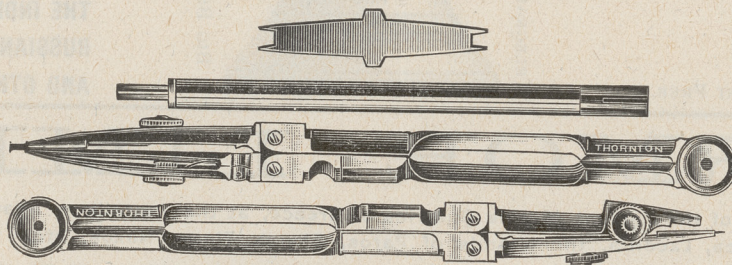
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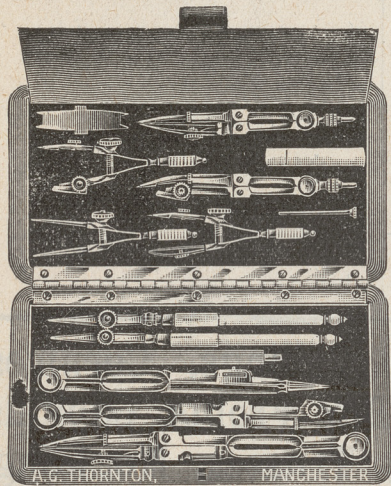
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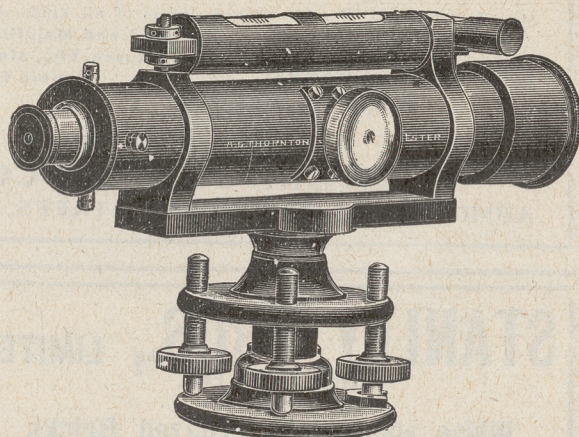
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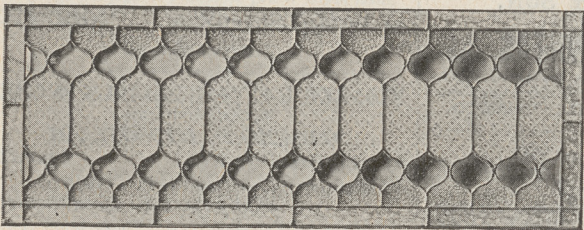
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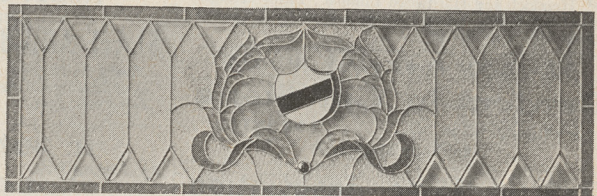
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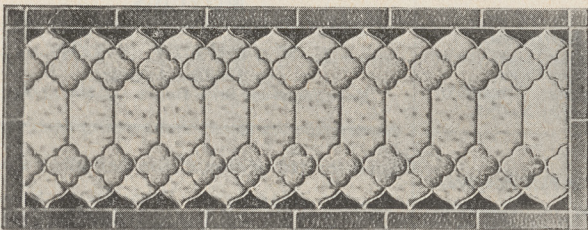
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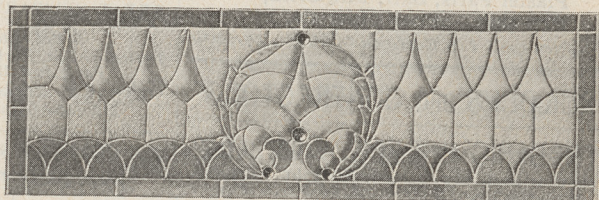
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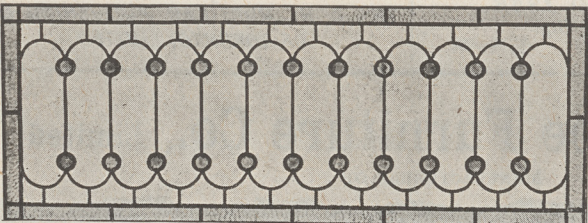
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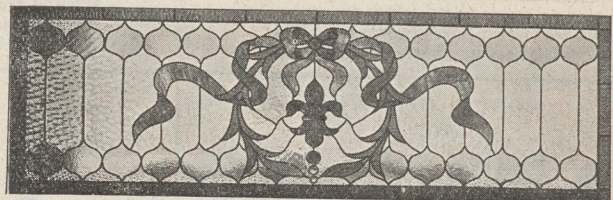
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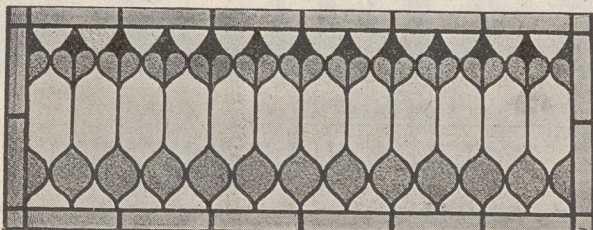
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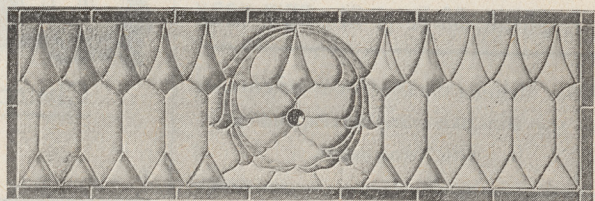
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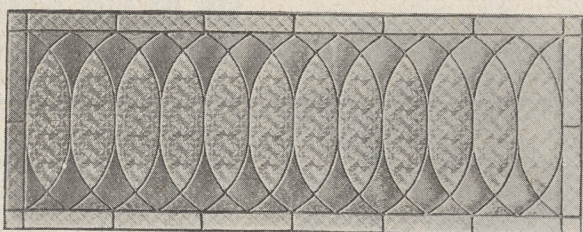
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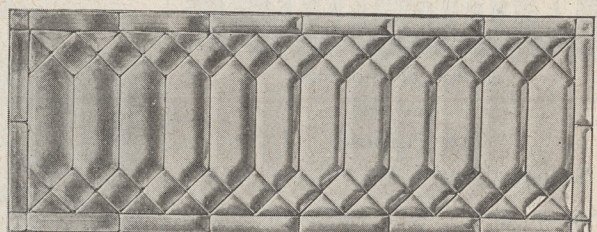
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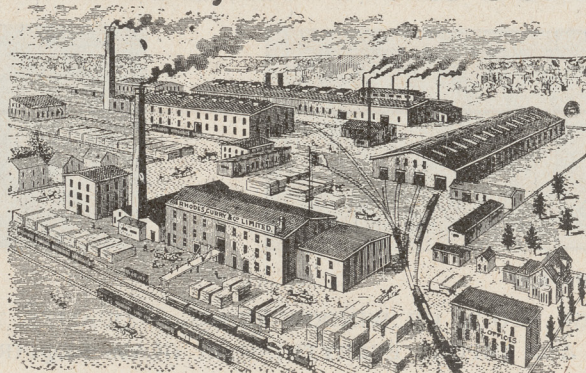
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